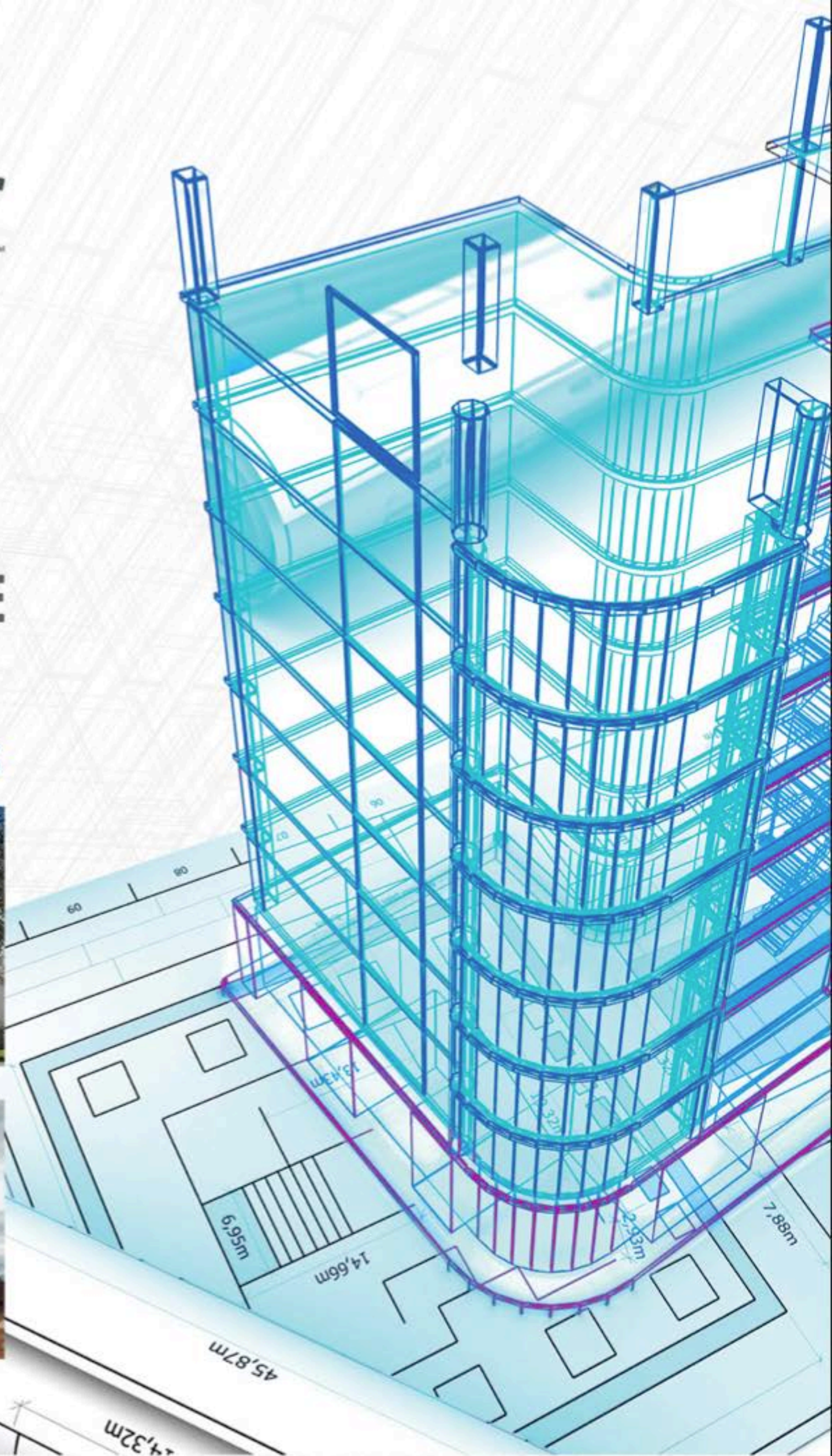




# ONLINE TRAINING & PERFORMANCE SOLUTIONS

FOR AEC PROFESSIONALS



ARCHITECTURE, ENGINEERING AND CONSTRUCTION  
COURSE CATALOG

2021

## IMPROVE PERFORMANCE. STRENGTHEN COMPLIANCE. REDUCE RISK.

Vector Solutions sets the standard for excellence in online continuing education, training, and human performance in the architecture, engineer, and construction (AEC) industry to help organizations improve productivity and reduce costs. Through our award-winning Learning Management System (LMS), we offer large-scale corporate training solutions including engaging courses and a full range of tracking and reporting features.

With approximately 2,000 online AEC courses authored by more than 200 subject matter experts and accredited by 100 national and state bodies, Vector Solutions helps thousands of firms in all 50 states train and develop their employees and increase their bottom line.

### Training Solutions

Vector Solutions has the most dynamic, up-to-date online eLearning courses for professionals working in the AEC industry including architects, engineers, contractors, land surveyors, landscape architects, interior designers, building inspectors, and facility managers.

Our courses support your workforce in their pursuit of continuing education credits towards credentials such as the PMP, CCM, and LEED.



Nearly all of Vector Solutions' online courses have been awarded approvals and accreditations from state and national boards, professional associations, and other accrediting organizations.

These courses have been reviewed to meet the technical requirements of the Board of Certified Safety Professionals (BCSP) for the following certifications: CSP, ASP, OHST, CHST, CET. The courses also meet international standards for adult continuing education as Vector Solutions is an accredited provider of the International Association for Continuing Education and Training (IACET).



## TRAINING TOPICS

### Architecture

- Accessibility/ADA
- Bath Planning
- BIM
- Building for Senior Living
- Building Systems for Designers
- Codes & Standards
- Cost Management
- Design-Build
- Energy Efficiency
- Historic Preservation
- Interior Lighting
- Space Planning
- Sustainable Design

### AutoDesk®\*

- Advance Steel
- BIM 360
- Civil 3D
- FormIt 360
- Hydraflow Extensions
- Infracore
- Insight 360
- Mockup 360
- Navisworks
- Revit
- Storm and Sanitary Analysis
- Vehicle Tracking

### Civil Engineering

*Construction, Structural, Environmental, Geotechnical, Transportation, Water Resources*

- BIM
- Codes & Standards
- Concrete, Wood, Steel
- Design Build
- Energy Efficiency
- Engineering Ethics
- Environmental
- Geotechnology
- Highways, Streets, Traffic, Parking
- Hurricane Mitigation, Wind Design
- Land Development
- Liquefied Natural Gas
- Sediments, Erosion, Drainage
- Seismic
- Stormwater, Wetlands
- Structural Design
- Wastewater, Hazardous Waste

### Codes & Standards

- American Society of Civil Engineers - ASCE
- American Concrete Institute - ACI
- American Society of Heating, Refrigerating, and Air-Conditioning Engineers - ASHRAE
- Americans with Disabilities Act - ADA
- Florida Advanced Building Code
- International Building Code - IBC
- International Energy Conservation Code - IECC
- International Fire Code - IFC
- International Fuel Gas Code - IFGC
- International Green Construction Code - IgCC
- International Mechanical Code - IMC
- International Plumbing Code - IPC
- International Residential Code - IRC
- National Electrical Code - NEC

### Construction & Trades

*Commercial/Residential Building, Electrical, Plumbing, HVAC*

- Arbitration, Mediation, Claims
- Arc Flash, NFPA 70E
- BIM
- Building Systems
- Codes & Standards
- Concrete
- Design Build
- Documentation
- Energy Efficiency
- Green Building
- HVAC/Refrigeration
- Indoor Air Quality
- Land Development
- Mold Remediation
- NEC
- Roofing Systems
- Wind Mitigation

### Electrical Engineering

- Engineering Ethics
- Alternative Energy
- Arc Flash, NFPA 70E
- Codes & Standards
- Data Centers
- Electric Motors
- Energy Efficiency
- Lighting
- Microgrids
- NEC
- Power Generation & Distribution
- Solar/Photovoltaics
- Transformers

### Green/Sustainable/LEED

- Alternative/Renewable Energy
- Codes & Standards
- Energy Efficiency
- Fitwel
- Flooding, Water Pollution
- Green Design/Building
- Green Globes
- ISI Envision Rating System
- LEED v4 Building Design & Construction - BD&C
- LEED v4 Homes
- LEED v4 Interior Design & Construction - ID&C
- LEED v4 Neighborhood Design - ND
- LEED v4 Operations & Maintenance - O&M
- Sustainable Trends
- Well AP

### Health, Safety & Environment

- CPR/First Aid
- Bloodborne Pathogens
- Confined Space
- Crane/Forklift Safety
- Driving Safety
- Electrical Safety, Arc Flash, NFPA 70E
- Ergonomics/Back Safety
- Fall Protection
- Fire/Emergency
- Hazardous Materials/Communication
- HAZWOPER 8-Hour Refresher\*\*
- Ladders/Scaffolds
- Mold, Lead, Asbestos
- MSHA
- Office Safety
- OSHA 10-Hour Construction \*\*
- Personal Protective Equipment
- Respiratory Protection

### Home/Building Inspection

- Accessibility/ADA
- Codes & Standards
- Florida Advanced Building Code
- Report Writing

### Interior Design

- Accessibility/ADA
- BIM
- Building Systems for Designers
- Codes & Standards
- Drawing Shortcuts
- Furniture Design
- Green Design
- Interior Lighting
- Space Planning

### IT & Cybersecurity

- Client Support
- Cloud
- Cybersecurity
- Network
- Server

### Land Surveying

- Boundary Disputes
- Court Decisions
- Easements
- Ethics for Land Surveyors
- Metes & Bounds

### Landscape Architecture

- Accessibility/ADA
- Codes & Standards
- Green Landscape Design
- Irrigation
- Parking Lot Design
- Regenerative Landscape Design
- Road Alignment
- Site Engineering
- Soils
- Storm Water Management

### Mechanical Engineering

- ASHRAE
- Codes & Standards
- Electric Motors
- Energy Conversion
- Engineering Ethics
- Fuel & Combustion Systems
- HVAC
- Indoor Air Quality
- Mechanical Science
- Pipes & Pumps
- Refrigeration

### Petroleum Engineering

- Engineering Ethics
- Fuel & Combustion Systems
- Liquefied Natural Gas
- Liquid Process Piping
- Natural Gas
- Petroleum Exploration, Recovery, and Transportation
- Petroleum Instrumentation and Measurement

### Professional Development

- Communication, Presentations
- Advanced Project Management Series
- AEC Success Series
- Customer Service
- Cyber Security
- Financial Management
- Health & Wellness
- HR Compliance - Sexual Harassment Prevention, FMLA, Discipline, Hiring, Termination, etc.
- Leadership, Coaching
- Management
- Process Improvement
- Quality Control
- Sales, Business Development
- Violence in the Workplace
- Word, Excel, PowerPoint, Outlook

### Project Management

- Delivery Systems, Design Build
- Budgets
- Communication/Leadership
- Contracts
- CPM Scheduling
- Documentation/Reports
- Microsoft Project
- Planning/Scheduling
- Quality Control
- Risk Management
- Time Management

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## EIT Success

Title	Description	Hours	Level
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Energy Conservation Code - Commercial Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for commercial buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of commercial building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in commercial building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Energy Conservation Code - Residential Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for residential buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of residential building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in residential building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
2015 International Fire Code Essentials – Site and Building Services	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Special Processes and Building Uses	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Fire Code®: Significant Changes	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced
2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced
A Better Construction Contract	This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed. A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
A Hydrology Primer for Engineers and Design Professionals	Many design professionals were introduced to hydrology concepts when they started their careers. But the science and terminology of hydrology continues to evolve. Engineers and other design professionals need to understand hydrology concepts in order to design appropriately. This online interactive course gives you the hydrologic cycle, types of natural storage and infiltration, recharge and base flow, surface runoff, peak rates of flow, I-D-F curves, hyetographs and hydrographs, runoff volume, NRCS hydrologic soil groups, and concentration, as well as a lengthy discussion on the differences between the Rational Method and the federal peak flow methods (using TR-20 and 55).	2	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>A Wetland Primer for Design Professionals</b>	An understanding of wetlands is increasingly important for design professionals, including architects, engineers, land surveyors and landscape architects. This 1-hour online course will acquaint you with the changed perception of wetlands in North America, contemporary definitions of wetlands and types of wetlands found on this continent. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: <ul style="list-style-type: none"> <li>Ground and floor surfaces (302)</li> <li>Changes in level (303)</li> <li>Wheelchair turning space (304)</li> <li>Clear floor space (305)</li> <li>Knee and toe clearances (306)</li> <li>Protruding objects (307)</li> <li>Reach ranges (308)</li> <li>Operable parts (309)</li> </ul>	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication. What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501) Parking Spaces (502) Passenger Loading Zones (503) Stairways (504) Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: Recreational Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including: 1001 General 1002 Amusement rides 1003 Boating facilities 1004 Fishing piers and platforms 1005 Miniature golf courses 1006 Golf courses 1007 Exercise equipment 1008 Bowling lanes 1009 Shooting facilities 1010 Swimming pools, wading pools, and spas ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>ADA Guidelines 2010: Small Towns</b>	People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Architect and Engineer Design Coordination</b>	As with all things that require several members to work together, coordination-or lack thereof-can have a tremendous impact on the outcome. When many skillful individuals work together it is very useful to follow a methodological approach when coordination and communicating with each other. This 1-hour interactive online course will analyze project scopes, scheduling, quality control, and the permitting process, all items that will need to be coordinated before and during the design of the project. You will be armed with all the knowledge and skills you need to coordinate and communicate effectively throughout your organization. Use this course to enable a successful project, all the way from the pre-proposal to final construction.	1	Fundamental



## EIT Success (Continued)

Title	Description	Hours	Level
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
<b>ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations. We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Basics of Soil Resources 1: Classification, Mapping and Data Bases</b>	The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations; 99.7 percent of human food comes from cropland, which is shrinking by more than 10 million hectares (almost 37,000 square miles) a year due to soil erosion. This 2-hour online course discusses soil as a complex, dynamic, biogeochemical system that is the principal substrata, vital to every life cycle of terrestrial vegetation and organisms. Soil serves as a reservoir of water and nutrients as well as a medium for the filtration and breakdown of wastes. Faced with climatic changes, increasing population and rapid decreases in the extent and quality of the soil resource base, the global community must now take stewardship of the resource most immediately linked to our survival.	2	Fundamental
<b>Basics of Soil Resources 2: Erosion, Desertification, Salinization &amp; Soil Acidification</b>	This course focuses on the topics of erosion, desertification, salinization and soil acidification. These are issues that affect all life on earth. 70% of earth's land capable of supporting agriculture has suffered erosion and soil degradation. This has a direct impact on the chemical cycles of life, the atmosphere, water and food supplies of the entire planet. The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations. Soil and land resources are generated, developed and renewed within a geologic time frame, in processes that take hundreds of thousands or even millions of years. The span of human history is measured in some thousands of years. For this reason, land resources must be regarded as essentially non-renewable. It is therefore exceptionally important to adopt a proactive approach to conservation and sustainable management of these critical resources.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Basics of Water Resources: Groundwater Contamination</b>	<p>Since the 1970s there has been a disturbing discovery of hazardous wastes in ground water. Early discoveries of sites such as Love Canal in New York and the Denver Arsenal in Colorado initiated a new era in groundwater studies. Throughout the 1980s numerous studies of abandoned waste sites, spills and leaking underground storage tanks became headline news. Groundwater hydrology is now critical to understand the mechanisms and rates of transport of physical, chemical and biological contamination below the ground, and the impact of those contaminants on the ground water supply. This 2-hour interactive online course covers the fundamental sources and classifications of groundwater contamination. The course focuses on the discussion of natural and man-made sources of groundwater pollution and gives some perspective into various systems of categorization and classification. The RedVector course entitled Basics of Water Resources: Groundwater Hydrology covers the introduction to the hydrologic cycle and the basic terminology of groundwater. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Fundamental
<b>Basics of Water Resources: Groundwater Hydrology</b>	<p>This 1-hour interactive online course covers the fundamentals of water supply hydrology. From the hydrologic cycle to the nature and character of groundwater as it goes from recharge zones to discharge points, the basic concepts and terminology are introduced in a clear and easy to read form. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Basics of Water Resources: Wetland Basics</b>	<p>Once perceived as worthless, wetlands are now known to be vital to water quality, erosion control, species diversity, biological productivity and even climate. Their form and function involves a complex interaction between geological setting, hydrology and climate. Their reaction to and interaction with human activity in a region will determine the future of humans in that region, since they ultimately play a role in water quality, flood control, pollution and climate control as well as providing food and recreational resources. This 3-hour interactive online course covers the fundamentals of wetlands. Keywords: wetland, hydrology, climate, flood control, water quality, pollution, climate control, ecology, species diversity, biological productivity, environment, environmental, hydrologic cycle, chemical cycles, swamp, bog, fen, Clean Water Act, Section 404 Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Fundamental
<b>Better Roadway Design - Curbs &amp; Pedestrian Control Devices</b>	<p>Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of edge treatment/delineation of curbs, curb radii, and pedestrian control devices at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Advanced
<b>Better Roadway Design - Intersection Signalization</b>	<p>Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subject of signalization for turning movements at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Advanced
<b>Better Roadway Design - Intersection Signing</b>	<p>Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour online course covers the subjects of signing at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Advanced
<b>Better Roadway Design - Intersections</b>	<p>Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of reaction times and driver performance that may not be realistic. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour interactive online course covers the subjects of intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Advanced

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Better Roadway Design - Lane Assignment, Signals &amp; Lighting</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of devices for lane assignment on intersection approach, traffic signal performance issues and fixed lighting installations at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Advanced Acoustic Design Principles</b>	Achieving good acoustics has become increasingly difficult for a variety of reasons. Some of those reasons are budgets with low construction budgets, weight of various materials, and an increase in open areas and a higher density of employees in the office. Interior designers can have a profound effect on the acoustical quality of an interior environment. In this course we will look at Sound absorption and Sound Transmission Between Spaces, examine all types of environments from offices, schools, and performance centers. We will examine how sound in one space can be reduced within that space as well as what determines how much sound that travels to an adjoining space will be heard. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Advanced
<b>Building Systems for Designers - Electrical Appliances and Communications Equipment</b>	As we all know from talking with parents and grandparents and from watching old movies and TV shows, technology at home and in the office has changed considerably. Many of the items we consider necessities in our modern world would seem like magic to our ancestors. This course will give you the evolution of our most commonly used appliances as well as current information to use in designing for today's homes and offices. We'll focus on kitchen appliances, laundry equipment, and data and communications wiring. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Electrical Systems Basics</b>	Our reliance on electricity has serious implications for environmental quality and resource conservation. Lighting consumes 25 to 30 percent of the energy used in commercial buildings. This adds heat to a building's interior and increases energy use for air conditioning. In this course we will review basic principles of system design and the various sources of power. We'll also explore the design process, system components, and end-point devices. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Fire Safety</b>	Most deaths caused by building fires occur in homes, yet the National Fire Protection Association reports that only about 23 percent of households have actually developed and practiced a home fire escape plan to ensure they could escape quickly and safely. When fires occur in high-rise buildings, great numbers of persons are required to travel vertically down stairs in order to evacuate so it is especially important to have a plan for evacuation. This course covers how building interiors are designed to prevent fires and help people escape. This is, perhaps, the most valuable information that interior designers should know about building systems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts.... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will effect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counteract these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Building Systems for Designers - Introduction to Acoustic Design Principles</b>	Interior designers' experience the world in a strongly visual way, they are often deeply affected by messages received by their other senses as well. Perhaps the most critical of these is the sense of hearing. Sound in a well-designed space reinforces the function of the space and supports the occupants' experience. A poorly designed acoustic environment hinders both the function and the enjoyment of the space, and it can even damage the health of the user. In this course we will take a look at the effect that sound can have on the environment. In this course, we will explore the world of sound and the effect it has on building materials and the people occupying the space. We will look at the designers roles and how to deal with Interior Acoustics Design Issues. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Lighting Systems</b>	All interior design projects start with an investigation of existing conditions. The location of an interior project within an existing or newly designed building, whether at the perimeter or at its center, affects light, view, and energy demands. Interior design schools routinely offer full-semester courses on lighting design. It is not the purpose of this course to try to cover all of the facets of lighting design to the degree that a lighting course would. Instead, we will look at how the current approach to lighting developed as well as how current lighting design practices affect relationships between architects, engineers, lighting designers, and interior designers. We will also look at and controls and will consider practical fixture requirements and lighting system maintenance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Principles of Thermal Comfort</b>	In Regenerative Design for Sustainable Development, John Tillman Lyle writes, To control the flow of energy within a building, the materials and the details of their assembly must augment the form. Five elements of a building are particularly important for their roles in the thermal regime... This course explores those five elements and how they determine thermal comfort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Structural Systems</b>	Although your work as an interior designer is concerned with interior spaces, you will benefit from an understanding of the way buildings are constructed. Why they stand up or fall down, and how different building techniques affect the shaping and utilization of interior space, should be areas of interest to you. In this course we will cover three major areas: Basic Structural Principles and Elements, Structural Forms, and Horizontal Structures and Vertical Movement. We cover everything from superstructure and foundation to windows and walls to horizontal and vertical conveyance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Toilet and Bath Design</b>	In this course, we will touch upon the history of plumbing specifically related to bathrooms, which will lead to the various regulations and standards that must be met in the design and placement of toilets, urinals, bathtubs, sinks, and drinking fountains. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Water Supply, Distribution, and Waste Systems</b>	In this course, we will learn how water gets from its original source to our homes and offices and how it is disposed. We will also cover the various components that make it possible. Additionally, we will learn about efforts currently being made to be more water efficient. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers: The Building and Its Environment</b>	Although interior designers are primarily concerned with the conditions inside buildings, they benefit from observing a building's site, climate, and geography. Interior spaces are increasingly blended with their natural settings. Wise energy use dictates awareness of how sun, wind, and cold affect the building's interior. Interior designers today are working as part of environmentally aware design teams that blend knowledge of interior design principles with an understanding of a building's natural surroundings. This interactive online course examines the connection between a building's interior and exterior environment and the influence of external weather and site conditions on a building envelope. Sustainable design strategies will be discussed, as well as building codes and regulations. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Commercial Building MEP Design</b>	This 1-hour interactive online course details the steps that can be taken to begin the Mechanical, Electrical and Plumbing (MEP) design of a typical commercial building. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental
<b>Concrete 1: Evaluation and Causes of Damage</b>	When taking on a concrete repair project, the first step is an important one - conducting a thorough evaluation. This 1-hour interactive online course begins with techniques for surveying the condition of the concrete, and reviews design and construction documentation, operation and maintenance records, instrumentation data, visual examination, methods of nondestructive testing and laboratory specimen analysis. The second part of the course identifies basic causes of deterioration, and covers typical symptoms, and recommendations for preventing further damage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 2: Repair Planning and Preparation</b>	The success or failure of a concrete repair project is dependent on many things, including how well you plan and prepare for the project. This 1-hour interactive online course discusses factors that should be considered before selecting a concrete repair method, as well as steps that should be taken to prepare the site before the actual repair begins. The first section of the course discusses the properties of repair materials and the concrete substrate, along with a review of important factors at the repair site itself. The second section discusses removal of concrete, and preparation of concrete surfaces for further work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 3: Methods, Materials, and Maintenance</b>	When a concrete structure fails, it requires repair. However, if not done correctly, the repair can also fail. This 2-hour interactive online course explains various methods and materials for the repair and maintenance of concrete structures. The first portion of this course describes materials and methods that are available for repair or rehabilitation of concrete structures, including their applications, limitations, and procedure. The second section of the course describes materials and procedures appropriate for cleaning and protecting concrete surfaces. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Concrete Fundamentals: An Introduction</b>	Are your customers or clients using words like slump, water-cement ratio, cement content, and compressive strength? Do you understand admixtures and their functions? How about reading and understanding a mix design? Do you know how to place and finish concrete? This 2-hour online course introduces the student to the basic fundamentals of concrete. This course includes a multiple-choice quiz at the end.	2	Fundamental
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
<b>Construction Claims: Changed Work</b>	This 2-hour online interactive course provides a basic understanding of types of changes in work—directed or constructive change—and changed conditions. It provides an in-depth examination of cumulative impact, emphasizing how to identify types of change-related impacts, that includes a detailed discussion of the Leonard Study. In addition, it discusses how to address cumulative impact and assess allowance for recovery. Summaries of actual court cases are incorporated into the course to illustrate how changed work claims are determined. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>Contract Guide for Design Professionals - Basic Principles</b>	This course is written primarily for the design professional - architects, engineers, and other persons that provide professional opinions and services for construction projects. The discussion of contract clauses in this course is intended to provide general information and education for use on traditional design-bid-build projects and does not necessarily apply to the design-build method of contracting. This is because the expectations of the parties on design-build projects are generally different than those on design-bid-build projects. Also, the terms and conditions of contractual agreements on those projects will reflect those different expectations—resulting in a different allocation of risk between the parties. Nevertheless, for a few of the key terms and conditions, a brief discussion of risk allocation and risk management on design-build projects is included in this course. In a similar manner, although this course is focused on traditional commercial projects, brief discussions of clauses and risk management issues germane to Environmental Remediation contracts are included. This course outlines a number of the contract clauses most often identified by construction lawyers and professional liability insurance carriers as requiring particular attention with regard to risk allocation.	3	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Critical Facilities - Emergency Electric Power</b>	Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events. This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable.	2	Fundamental
<b>Design of Utility Infrastructure</b>	Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities.	2	Fundamental
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced
<b>Drinking Water Quality - Monitoring &amp; Security</b>	It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties. In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities.	1	Fundamental
<b>Drinking Water Quality - Water Treatment Technology</b>	Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system.	1	Fundamental
<b>Effective Groundwater Supply Management</b>	Effective Groundwater Supply Management is essential if groundwater resources are to remain viable for the foreseeable future. Groundwater Management is a rapidly evolving discipline that is incorporating ever more factors into the evaluation of principles that will ensure that no harmful effects arise from the utilization of this resource while ensuring that all potential resources that can be maintained are used to satisfy an ever-increasing demand. This interactive online course will present a history of Groundwater Management from its beginnings in the middle of the last century through the present day. Current parameters and environmental factors of concern will be outlined.	1	Advanced

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Electric Motors</b>	Electric motors are used in all facets of daily life from electric generators, refrigerators, air conditioners, to the electric fan in computers. This interactive online course teaches you about electric induction motors. It covers how a motor works, the types of electric motors available, and how to apply an electric induction motor. This course looks at the relationship between motor speed, slip, and torque, and covers how to select a motor with the correct parameters for a particular load. Finally, all of the basic data on a motor nameplate is reviewed and explained.	1	Fundamental
<b>Electrical Fire Alarm Systems</b>	This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification.	1	Fundamental
<b>Energy From Waste</b>	How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel.	1	Fundamental
<b>Essential Lighting: The Language, Metrics &amp; Process of Lighting Design</b>	This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad. The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment. The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective. Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics. There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Essentials of Industrial Wastewater Treatment</b>	High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand. This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly.	1	Fundamental
<b>Essentials of Intelligent Transportation Systems</b>	What is an Intelligent Transportation System? Intelligent Transportation Systems (ITS) apply a variety of technologies to monitor, evaluate, and manage transportation systems to enhance efficiency and safety. This interactive online course provides an overview and history of ITS from early initiatives through the evolution of technology, systems engineering, and institutional structures. We will also describe the role of ITS in changing travel and commuter patterns and travel demand management.	1	Fundamental
<b>Essentials of Quality Concrete</b>	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
<b>Essentials of Smart City Applications</b>	What is a smart city? A smart city is an urban development vision to integrate multiple information and communication technologies and Internet of things (IoT) solutions in a secure fashion to manage a city's assets. This interactive, online course will list possible stakeholders of a smart city, as well as how a smart city policy is developed. Smart city technologies will also be discussed.	1	Fundamental
<b>Essentials of the Connected Vehicle</b>	What is a connected vehicle? Connected vehicles offer a fundamental change in systems management and ITS infrastructure by focusing on vehicle-to-vehicle and vehicle-to-roadway communication. This interactive, online course discusses the current and emerging technology and the institutional, policy, and funding challenges of connected vehicle applications.	1	Fundamental
<b>Ethical Decision Making (RV-10705AW)</b>	Professionals associated with site, building, or neighborhood planning, design, and development have a unique charge to make ethical decisions with the welfare of both the environment and citizens in mind. The goal of this course is to expose professionals to some of the most common ethical considerations within planning, design, and construction professions and give the opportunity to learn how to create a built environment that improves the quality of life of a community while adhering to simple strategies to facilitate ethical practice in the work place.	2	Fundamental
<b>Ethical Decision Making for Design and Construction Professionals</b>	Designers, Planners, Architects, Landscape Architects, and Engineers all need to know about and adhere to established codes of ethics. Then you will protect the public and the environment now as well as in the future. This webcast gives you the history of the events that led to our current attitudes regarding ethical decision making. You will get specific examples of the consequences for making unwise decisions. You'll also receive instruction in the ethical considerations involved in making good, safe, ethical decisions. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Intermediate
<b>Ethical Decision Making for Engineers #1</b>	In this course we examine the NSPE Code of Ethics. We review cases ruled upon by the NSPE Board of Ethical Review, which will be key to helping you determine how you should act when faced with ethical decisions. We explore each of the 6 fundamental canons.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
Ethical Decision Making for Engineers #2	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this second course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how the Code specifically applies in each case. We will look into a case involving the use of unlicensed software to create work products. We will review the concept of conflict of interest. Finally, we will discuss cases involving licensure and practicing in different states.	1	Fundamental
Ethical Decision Making for Engineers #3	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this third course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of using existing work for different clients and disclosing required information. We will look at cases involving conflict of interest and the engineer's responsibilities for handling incomplete specifications. Finally, we will look at the ethical responsibility to notify authorities and owners of potentially dangerous conditions.	1	Fundamental
Ethical Decision Making for Engineers #4	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fourth course, we will continue the discussion of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into cases involving conflicts of interest and the appearance of conflicts of interest. We will also look at a case involving responsibilities of the engineer in situations that may endanger public safety. Finally, we will look at the responsibilities of an engineer when reviewing another engineer's work.	1	Fundamental
Ethical Decision Making for Engineers #5	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fifth course, we will continue the direction of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of participating in political fund raisers. We will also look at a case involving the ethics in employee agreements. We will discuss the implications of protecting wildlife. Finally, we will look the rights of engineers when speaking out about matters of public policy.	1	Fundamental
Ethics for the Practicing Engineer - An Introduction	This course is designed to satisfy state board requirements for continuing education in ethics. This will be an introduction to professional ethics, contrasting common morality to professional ethics, and will present analytical tools to identify and classify ethical dilemmas potentially faced by practicing engineers.	1	Fundamental
Ethics for the Practicing Engineer - Organizational Issues	Organizational issues can affect the decisions made by engineers every day. This interactive online course will focus on issues facing engineers working in large organizations. Case studies of organization-induced problems (such as the two space shuttle failures, the Macondo blowout, the GM ignition switch case) will be used to help participants recognize when organizational problems might cause ethical issues for engineers.	1	Intermediate
Ethics: Shades of Green	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
Financial Management 1: Negotiating Contracts	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate



## EIT Success (Continued)

Title	Description	Hours	Level
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fundamentals of Asphalt Pavement Design</b>	This training presents the fundamentals of asphalt pavement design. This course will introduce asphalt pavement systems, as well as asphalt pavement materials and their properties. The characteristics of asphalt concrete are presented, followed by description of the properties of asphalt pavements. A review of current asphalt concrete mix design methods is presented. The elements of the structural design of asphalt pavements will be discussed in detail. This includes the AASHTO method for determining layer thicknesses. This course will enable pavement engineers, materials engineers as well as materials technicians to gain a better understanding of the fundamentals of the asphalt pavement design process and analysis. Examples and sample calculations are included throughout this course.	2	Fundamental
<b>Fundamentals of Petroleum Engineering</b>	This course is designed to convey the basics of the oil and gas industry to the Construction Professional. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature, and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about oil and gas operations before getting started.	2	Intermediate
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliance is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Generating Electricity</b>	This course is an introduction to the basics of generating electricity and covers the primary types of generation used today. The main pieces of equipment used in electricity generation are covered, as well as how generation is managed to meet demand from customers.	1	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Datum Selection and Interpretation</b>	When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Form and Size Tolerances</b>	Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Introduction</b>	GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Orientation Tolerances</b>	In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Position Tolerances</b>	GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Profile and Runout Tolerances</b>	Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements.	0.25	Intermediate
<b>Geothermal Heat Pumps</b>	This 2-hour interactive online course is an overview of geothermal heat pump systems. The course covers the basics of how a heat pump works and the specific differences between an air source heat pump and a geothermal heat pump. The benefits of using geothermal are discussed as well as the costs including installation costs, energy cost, and maintenance costs. Issues such as how to select the most appropriate antifreeze solution are discussed along with the merits of each type of loop system likely to be used in a geothermal application. There is a test included at the end of this course to assess the student's understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or under used out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series: Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Soil testing Hydrologic and hydraulic analysis Vegetation assessment, preservation, and transplantation Invasive species evaluation The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices	1	Intermediate
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Working with community groups Attractive Streetscapes safe for pedestrians and vehicles Improvements that promote good health in cities Upgrades that are cost-effective and sustainable Changes that provide for increased security The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices	2	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 4: Best Practices for Pavement</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Pavement lifecycle Pervious vs. impervious pavement Albedo or Reflectivity of pavement Pavement materials A materials program Material applications</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Mechanisms to affect right-of-way construction by private utilities Technology to minimize pavement damage and degradation Upgrades to utility installation and maintenance</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices It is recommended that you take the Introduction course before taking the Best Practices courses. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	<p>This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Integrated stormwater management planning Water pollution prevention Construction runoff prevention Surface pretreatments for filtering runoff Catch basin inserts and water quality inlets Detention and Infiltration structures Constructed wetlands</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate
<b>Green Infrastructure 7: Best Practices for Landscape</b>	<p>This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Citywide landscape planning Maintaining and enhancing biodiversity and ecology Landscapes capable of high rates of stormwater absorption, infiltration, and treatment Tree planting for quantity, density and diversity Turfgrass reduction Plant selection Designing water-efficient landscapes Pest Management</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 8: Best Practices for Construction Practices It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 8: Best Practices For Construction</b>	This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape It is recommended that you take the Introduction course before taking the Best Practices courses.	1	Intermediate
<b>Green Landscape Design: Reducing the Urban Heat Island Effect</b>	As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live.	2	Fundamental
<b>Green Landscape Design: Water Conservation in the Landscape</b>	Were you aware that an efficient and effective irrigation system can reduce wasted water and save money? Current technology provides easy solutions to keep irrigation systems fine-tuned and make it easy to adjust remotely. This interactive online course will focus on the tenets of water conservation in landscaping including: appropriate plant selection, irrigation planning and design principles, efficient irrigation technologies, and others. Case studies of community conservation programs and site specific approaches are also featured.	2	Fundamental
<b>Green Streets</b>	Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and rivers Ensure the street has the least impact on the surrounding environment, m Help ensure the safety of the pedestrian or bicyclist on the street Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Urban Design</b>	Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements	2	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.	2	Fundamental
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>Heavy Construction Equipment Basics - Earthmoving &amp; Excavating</b>	Contractors do many types of construction activities that require many different types, sizes and groupings of equipment. Most new construction projects are connected to the earth by some type of foundation system. Utilities are located underground so they are less obtrusive and not in the way. Building sites must drain away from the structure and divert the water to a safe place. All of these activities require excavating and earthmoving. The focus of this 3-hour interactive online course is big iron used for excavating and earthmoving. Discussion is intended to be basic. Content is not intended to be comprehensive. Discussion focuses on the basic principles for heavy equipment selection, grouping and simple costing. Earthmoving equipment discussed includes bulldozers, front-end loaders, motor graders, scrapers, and dump trucks. Excavating equipment discussed includes excavators, backhoes and trenchers. A short test must be completed after each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Heavy Construction Equipment Basics - Lifting</b>	Vertical construction requires building a structure up or away from the surface of the earth. The work requires heavy construction equipment for moving workers, materials and other equipment onto the structure as it is built. Hoisting or lifting loads is an integral part of this construction. How it is to be done must be incorporated into the construction strategy and how much it will cost must be included in the budget. Choosing the right lifting equipment and rigging is mandatory for safe vertical construction. Content included in this 2-hour online interactive course is intended to be basic. Discussion focuses on basic principles for lifting equipment selection, capabilities and uses. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Highway Engineering: Contracts and Supervision</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Practically all highway construction projects in the United States are public works, which are constructed with public funds. The agency authorizing this construction may be a federal, state, municipal, or county governmental unit, but the greatest number of highway construction projects today are authorized through the various state highway agencies. More than 95 percent of the construction done under state highway supervision is done by contract. The remaining 5 percent is done by the state's own forces organized and equipped to do this work. This 1-hour interactive online course covers the procedure generally followed by most state highway agencies in preparing contractual documents and in supervising construction. The course reviews unit pricing, the bid process, documentation, subcontracting, prequalification, state and federal agreements, bidding mechanics, unbalanced bids and construction supervision. This is the seventh course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Highway Engineering: Highway Drainage and Surveys</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. One of the most important considerations in locating and designing rural highways and city streets is providing adequate drainage. Adequate and economic drainage is absolutely essential for the protection of the investment made in a highway structure and for safeguarding the lives of the persons who use it. This 4-hour interactive online course discusses some of the fundamental concepts of highway and street drainage. Surface drainage in essentially rural areas is discussed in considerable detail; accompanying this is a discussion of measures for the prevention of erosion of shoulders, side-slopes, and side ditches. Considerable space is devoted to the location, design, and construction of culverts. Material is also presented relative to subdrainage, and the course concludes with a brief discussion of drainage in municipal areas. This is the sixth course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Highway Engineering: Part 1 - Highway Materials, Maintenance and Rehabilitation</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the first half of the eighth course in a series on highway engineering. This course describes some of the physical characteristics and quality control tests for soils, aggregates, bituminous materials, and portland cement. Detailed material specifications and tests for these and other highway construction materials have been published by the American Association of State Highway and Transportation Officials.	8	Intermediate
<b>Highway Engineering: Part 2 - Highway Materials, Maintenance and Rehabilitation</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the second half of the eighth course in a series on highway engineering. This course covers high-type pavements, concrete pavements, maintenance and rehabilitation.	8	Intermediate
<b>Highway Rumble Strips</b>	Rumble strips are a common safety feature incorporated into new roadway designs. This 1-hour interactive online course contains information on state-of-the-practice for the design and installation of shoulder rumble strips and provides guidelines for their use on appropriate rural segments of the National Highway System (NHS). The text of the course is taken from the Federal Highway Administration's Technical Advisory on rumble strips. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>HVAC Design</b>	This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today.	1	Fundamental
<b>HVAC Distribution</b>	This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system.	1	Fundamental
<b>HVAC HEPA Filters</b>	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental
<b>Impacts of the 2010 ADA Guidelines</b>	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>Increasing Building Energy Efficiencies: Policies and Practice</b>	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>International Building Code &amp; More: About the Codes</b>	<p>A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley &amp; Sons, Inc. Copyright © 2011 All rights reserved.</p>	2	Fundamental
<b>International Building Code &amp; More: Code Officials and Code Processes</b>	<p>This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley &amp; Sons, Inc. Copyright © 2011 All rights reserved.</p>	1	Fundamental
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	<p>Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley &amp; Sons, Inc. Copyright © 2011. All rights reserved.</p>	1	Fundamental
<b>International Building Code &amp; More: Family Residences, Existing Structures and Historic Buildings</b>	<p>This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley &amp; Sons, Inc. Copyright © 2011. All rights reserved.</p>	1	Fundamental
<b>International Building Code &amp; More: Finish and Furniture Selection</b>	<p>This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley &amp; Sons, Inc. Copyright © 2011 All rights reserved.</p>	2	Intermediate
<b>International Building Code &amp; More: Means of Egress</b>	<p>The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley &amp; Sons, Inc. Copyright © 2011 All rights reserved.</p>	3	Fundamental
<b>International Building Code (IBC) - Assembly Spaces</b>	<p>This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.</p>	3	Fundamental
<b>International Building Code (IBC) - Care Facilities Provisions</b>	<p>This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.</p>	3	Fundamental
<b>International Building Code Significant Changes to 2012 Edition</b>	<p>The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council</p>	3	Fundamental
<b>Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	<p>This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&amp;M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).</p>	3	Fundamental



## EIT Success (Continued)

Title	Description	Hours	Level
<b>Introduction to Net Zero Buildings</b>	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental
<b>Introduction to Sustainable Design and Construction Using Green Globes</b>	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental
<b>Introduction to the ISI Envision Rating System</b>	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
<b>Introduction to Wetlands</b>	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
<b>Land Development Projects: Design of Infrastructure</b>	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental
<b>Land Development Projects: Developing Feasibility Studies</b>	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
<b>Land Development Projects: Grading and Drainage Design</b>	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
<b>LEED v4 - Certified Buildings Under the O&amp;M and BD+C Categories</b>	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
<b>LEED v4 - Operations and Maintenance</b>	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
<b>LEED v4 and Data Center Construction</b>	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
LEED v4 and the Future of Green	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criteria and its impact on the future of sustainable new construction.	1	Intermediate
LEED v4 for Commercial Office Buildings	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
LEED v4 for Existing Buildings: Operation & Maintenance (EBOM)	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
LEED v4 for Healthcare Facilities	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact health-care projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
LEED v4 for Hospitality Projects	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
LEED v4 for Interior Design + Construction	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
LEED v4 for New Construction Projects	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
LEED v4 for Retail Projects	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
LEED v4 for School Buildings	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental
LEED v4: Building Design and Construction	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
LEED v4: Neighborhood Development	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals -- from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
LEED v4: Residential Homes	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental
LEED: Water Efficiency	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Emerging Issues in the LNG Industry</b>	In this online interactive course, we provide an overview of some of the key emerging issues in the LNG industry including whether North America will become a major LNG exporter, the potential impact of the Panama Canal expansion project on LNG trade, the growing role of floating LNG (FLNG), the potential influence of the Gas Exporting Countries Forum (GECF) to act as a Gas OPEC, and the emergence of LNG as a shipping and vehicle fuel to aid in emission reduction efforts around the world.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Evolution of LNG Markets &amp; Primary Demand Regions</b>	The first ever US-UK shipment of LNG in 1959 on the Methane Pioneer demonstrated that large quantities of LNG could be transported safely across the ocean and opened up the possibility of transporting large volumes of natural gas from otherwise stranded fields to distant destinations based on consumer demand. This interactive online course will discuss the evolution of LNG markets, including the history of LNG and an overview of the three major LNG Markets - Asia-Pacific LNG market, the European LNG market, and the North American/Atlantic Basin LNG market, which includes North America, South America and Latin America.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Demand &amp; Emerging Demand Markets</b>	Until the late 1990s, LNG was a niche industry operating mostly in the Asia-Pacific region. As the world entered the 21st century, however, global demand for LNG surged in a perfect storm created by the industrial and commercial boom around the world that resulted in an ever-growing appetite for all energy resources. Between 2000 and 2008, the LNG industry entered a period of rapid growth with huge increases in supply coming from a growing number of LNG producing countries. However, between 2008 and 2009, the world endured the worst recession since the Second World War with demand for all energy dropping significantly. In 2010, as global economies appeared to be emerging from the recession, global natural gas demand resumed its long-term upward trajectory with the IEA projecting that natural gas will be the only fossil fuel for which demand is higher in 2035 than in 2008. While the ultimate wildcard for all natural gas demand is the pace and strength of the global economic recovery, the long term outlook for natural gas and LNG remains strong. In this interactive online course, we will identify LNG demand drivers. We will examine existing and emerging Asia-Pacific and European importers, and discuss the reasons behind the increased LNG demand in Latin America. We will also consider the natural gas puzzle faced by the Middle East/North African region. Lastly, we will investigate the market trends causing the U.S. to shift from LNG importer to LNG exporter.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Projects &amp; Players</b>	How well versed are you in the Liquefied Natural Gas (LNG) industry? Do you know where and how much is produced? In this interactive online course, we will examine the specifics of the global LNG mega projects in Qatar and Australia, and also discuss new players and projects in countries such as Russia, Peru, Yemen, and Papua New Guinea.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Supply</b>	Although worldwide natural gas resources are sufficient to meet projected increases in demand, almost half of the world's proved natural gas reserves are found in just three countries: Russia, Iran and Qatar. With the world's largest proved natural gas reserves, the Middle East and Africa are expected to account for 72 percent of the increase in natural gas exports by 2030, mainly to supply Europe and North America, although Australia is also emerging as a key LNG exporter and also potentially the US and Canada. Understanding where new LNG supply will come from is one of the critical aspects of understanding the dynamics of the global LNG industry. This interactive online course provides a description and overview of key LNG supply projects around the world, discusses the impact these projects will have on the LNG global market, and identifies some of the challenges that may be faced by new projects.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Globalization of LNG</b>	The growth in LNG trade over the past few years has led many to question whether the LNG markets have become globalized and whether LNG could ever trade as a global commodity. This interactive online course discusses the increased globalization of LNG markets and whether LNG could someday trade as a global commodity. The growth of LNG trade will be examined as well as the traditional oil-linked pricing structure for LNG. Recent pricing issues and the growing spot and short-term LNG market will also be discussed.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Natural Gas &amp; LNG in the 21st Century</b>	Policy makers around the globe continue to grapple with issues related to energy security, energy affordability, and an expected increase in demand for all energy sources. At the same time, concerns about global climate change and reducing greenhouse gas emissions remain in focus as the world struggles to define the path to a sustainable energy future. Since natural gas is an abundant, affordable, and clean-burning fuel, many countries around the world are increasingly looking to natural gas to play a key role in powering the future. The prospects for natural gas are so promising that the International Energy Agency (IEA) has suggested that the 21st century could be the Golden Age of Gas with demand for natural gas projected to increase by more than 50 percent from 2010 levels and account for over 25 percent of the world's energy supply mix by 2035. This interactive online course explores the growing role of LNG as the glue linking global gas markets and identifies the key opportunities and challenges for the LNG industry in the context of a number of competing drivers, including economic development, energy security, and climate change.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Safety &amp; Environmental Sustainability of LNG</b>	Do you have a solution to meet an ever-growing energy demand around the world? Many governments are looking to Liquefied Natural Gas. Not everyone agrees the LNG is the best answer. They claim there are serious safety and environmental impacts that negate the benefits of LNG as a fuel. In this interactive online course, we analyze how LNG can play a role in a sustainable energy future. Specifically, we will focus on the safety issues and environmental issues that accompany the use of LNG.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The Impact of Shale Gas on Global Gas Markets</b>	The tremendous boom in US shale gas has been a game changer all over the world. What do you predict for the future? This online interactive course will discuss shale gas. We will describe the markets as well as importing and exporting liquefied natural gas worldwide. We will focus most on North America.	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Liquefied Natural Gas (LNG): The LNG Value Chain</b>	The LNG value chain comprises a complex set of activities, all of which are capital intensive and require specialized knowledge in order to execute successfully. This interactive online course discusses the main stages of the LNG value chain - liquefaction, shipping and regasification and identifies the technologies used in these processes. Various LNG project structures and some basics of LNG measurement will be covered as well. The information in this course on the LNG value chain is designed to provide you with the foundation to develop a successful LNG project.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The Role of Shale Gas in the Golden Age of Gas</b>	How much do you know about shale gas? Since the development of unconventional gas resources is different and more challenging than conventional resource development, a basic understanding of the different types of gas reservoirs is helpful in order to appreciate the difficulties involved in extracting natural gas from certain types of reservoirs. In this interactive online course we will discuss the shale gas revolution, its production, and the technologies used to unlock it from shale.	1	Intermediate
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microgrids and the City</b>	Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources.	1	Intermediate
<b>Modern Environmental Laws</b>	There are a series of federal laws and Executive Orders since 2005 that have reinforced the federal government's commitment to energy conservation and environmental sustainability, including the Energy Policy Act of 2005 (EPAct) Executive Order 13423, Energy Independence and Security Act of 2007 (EISA), and Executive Order 13514. This webcast will discuss the mandates outlined in these federal laws and executive orders that require NetZero energy for all new federal construction and alterations by 2030 and a reduction of water consumption of 20% by FY 2020. The course also includes new greenhouse gas (GHG) emissions management requirements, expanded water reduction requirements for federal agencies, and address waste diversion, local planning, sustainable buildings, environmental management, and electronics stewardship.	3	Fundamental
<b>Modern Shale Gas Development</b>	The course provides an overview of modern shale gas development, as well as a summary of federal, state, and local regulations applicable to the natural gas production industry, and describes environmental considerations related to shale gas development. It describes the importance of shale gas in meeting the future energy needs of the United States including its role in alternative energy strategies and reducing greenhouse gas (GHG) emissions. The course is intended to serve as a technical summary document, including geologic information on the shale gas basins in the U.S. and the methods of shale gas development. By providing an overview of the regulatory framework and the environmental considerations associated with shale gas development, it will also help facilitate the minimization and mitigation of adverse environmental impacts. By so doing, the course can serve as an instrument to facilitate informed public discussions.	3	Intermediate
<b>Mold Basics</b>	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>OSHA 10 Hour Construction Program</b>	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA Electrical Safety Fall Protection Struck-By & Caught-Between Accidents Personal Protective Equipment (PPE) Scaffolds Cranes Hand & Power Tools Excavations Materials Storage Demolition Hazards in Construction	10	Fundamental
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Parking Lot Design: Elements of Design</b>	This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.	2	Advanced
<b>Parking Lot Design: Essentials</b>	This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Parking Lot Design: Parking Studies</b>	This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations</b>	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups</b>	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling</b>	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure</b>	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan</b>	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope</b>	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope</b>	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities</b>	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule</b>	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration</b>	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 12-Controlling Costs</b>	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 13-Estimating &amp; Budgeting Project Costs</b>	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 14-Project Quality Planning</b>	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control</b>	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources</b>	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources</b>	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications</b>	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced
<b>Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project</b>	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
<b>Principles of At-Risk Construction Management</b>	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
<b>Principles of Design-Build</b>	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental



## EIT Success (Continued)

Title	Description	Hours	Level
<b>Principles of Professional Construction Management</b>	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Risk Management</b>	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection</b>	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental
<b>Protecting People Against Terrorist Attacks: Structural Design Criteria</b>	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
<b>Pumping Stations - Pumps, Motors and Electrical Systems</b>	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental
<b>Reliability Engineering Essentials</b>	This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world.	1	Intermediate
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice (RV-10744)</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations Safe working clearances Safety practices	2	Intermediate
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Seismic - Wood Diaphragm Design for Out of Plane Wall Anchorage</b>	This course will explain the design and detailing of subdiaphragms for a flexible roof system using ASCE 7-10 Section 12.11 Structural Walls and Their Anchorage. Many low rise buildings are constructed with heavy walls of masonry or concrete and light wood roofs or floors. During an earthquake the light roof framing must stabilize the heavy walls as those walls move out of plane. IBC 2012 and ASCE 7-10 require that the roofs and floors be designed to transfer the out of plane wall forces through the diaphragm using the sub-diaphragm concept. This course will show you how to develop the demand on the diaphragm, calculate the capacity of the framing members and detail the members to achieve this load transfer.	1	Intermediate
<b>Seismic Diaphragm Demands</b>	This course will cover the development of the seismic diaphragm forces based on the IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.10. The demand on a diaphragm during a seismic event is not well understood. Using the Equivalent Lateral Force, this course will review the forces on the diaphragms and compare them to the story forces.	1	Intermediate
<b>Seismic Equivalent Lateral Force Base Shear</b>	This course will cover the development of the equivalent seismic force based on IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.8. The development of seismic forces using the Equivalent Lateral Force Procedure equation $V=C_s * W$ will be explained through the terms of Newton's 2nd Law. The course will define the forces generated during an earthquake and how those forces travel through the building to the ground.	1	Fundamental
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Site Planning and Design</b>	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Site Utility Design: Commercial Buildings</b>	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Lawful Hiring Practices</b>	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals Generate leads Learn about other companies and their hierarchies Leverage powerful tools to find and reach the right people Tap into the knowledge of their network, and Discover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
Stormwater Discharges from Construction Activities	Stormwater discharge from construction activities can have a significant impact on the water quality of rivers, lakes, and coastal waters with pollutants like sediment, debris, and chemicals. Stormwater discharges from construction activities that impact one or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. This two-hour course discusses the importance of stormwater controls on construction sites as well as a detailed look at specific construction-related pollutants. This course also provides participants with an overview of the new NPDES 2012 Construction General Permit (CGP), which is an update to 2008 CGP. In order to implement the new Effluent Limitations Guidelines and New Source Performance Standards for Construction and Development point sources (C&D rule), construction site operators must meet new restrictions on erosion and sediment control, pollution prevention, and stabilization.	2	Advanced
Stormwater Harvesting: A Green Concept	Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.	3	Intermediate
Stormwater Management: Low Impact Development (LID)	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to help combat the significant stormwater problems produced by traditional development methods. A number of these methods fall into the category Low Impact Development (LID) which focuses on water resource and natural resource protection. This 3-hour interactive online course describes a number of the LID methods that have been proposed. It includes information on applicability, design considerations, limitations, maintenance considerations and pollutant removal effectiveness of these methods. The course is based on guidance provided by the US EPA.	3	Intermediate
Structural Steel - An Introduction	Are you faced with a project that requires an understanding of structural steel? Do you know the standard steel shapes and how they are connected to erect a building? What is that ASTM specification on the Mill Cert and how does it apply to steel selection? When should you choose structural steel over other materials? This course introduces the student to the basic fundamentals of structural steel.	1	Fundamental
Surveying Essentials	Where was that property line? Do you see the marker? Surveying is used to produce precise descriptions, such as surveys and maps, of surface features of the Earth. Surveying essentials can be useful for engineers, architects, and contractors. This interactive online course covers the basics of surveying and basic principles used in land surveying, establishment of property lines, positioning of buildings, roads, pipelines, etc. Surveying terminology as well as routine calculations and techniques for making field notes are covered in this course. This course is primarily for those not acquainted with surveying and is intended to provide you with an awareness of surveying essentials.	1	Fundamental
Sustainable Building Technology	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
TDLR TEST Basic Electricity I	This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated.	2	Intermediate
The Principles and Implications of the International Energy Conservation Code (IECC) v2012	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>The Sustainable Site Design Process</b>	Sustainable site design is a creative and analytical process of information gathering, investigation, and composition that utilizes art and science to connect natural and built systems in a mutually beneficial way. Design outcomes are not inherently sustainable and should not be assumed just because a site is made up of vegetation, soil, and other natural components. Like all successful aspects of a project, sustainability must be intentional and nurtured. By infusing sustainability into all aspects of the design, it becomes an interwoven and inseparable component that is vital to the project's overall success. Traditional design processes and team interactions do not always support sustainable outcomes. To help overcome this issue, this course will cover an integrated design process designers can use which encourages the collaborative efforts of a project team and the utilization of the technical expertise of other professions to broaden the team's awareness of the range of possible design solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>The Ultimate Project Manager, Chapter 01: Today's Project Manager</b>	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 02: Marketing And Proposals</b>	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 03: The Contract Agreement</b>	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 04: The Project Management Plan</b>	The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 05: The Project Schedule</b>	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 06: The Project Budget</b>	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 07: Leading The Project Team</b>	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
<b>The Ultimate Project Manager, Chapter 08: Managing Client Relationships</b>	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 09: Developing Effective Communications</b>	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 10: The Project Startup	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
The Ultimate Project Manager, Chapter 14: Managing Project Quality	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
The Ultimate Project Manager, Chapter 15: Managing Project Risks	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
The Ultimate Project Manager, Chapter 16: Project Financial Management	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs. In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
The Ultimate Project Manager, Chapter 17: Project Management And Design Technology	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
The Ultimate Project Manager, Chapter 19: Project Closeout	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in a that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate

## EIT Success (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data</b>	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>The Value of Concentrating Solar Power and Thermal Energy Storage</b>	This course examines the value of concentrating solar power (CSP) and thermal energy storage (TES) in four regions in the southwestern United States. The analysis shows that TES can increase the value of CSP by allowing more thermal energy from a CSP plant's solar field to be used, by allowing a CSP plant to accommodate a larger solar field, and by allowing CSP generation to be shifted to hours with higher energy prices. We will look at the sensitivity of CSP value to a number of factors, including the optimization period, price and solar forecasting, ancillary service sales, capacity value and dry cooling of the CSP plant. We will also discuss the value of CSP plants and TES net of capital costs.	1	Intermediate
<b>Traffic Control Measures</b>	Traffic control uses design and operational strategies to influence the movement, flow, and speed of traffic. You can apply the information and methods you learn in this interactive course to develop new and modify existing transportation infrastructure. The expertise you acquire can add benefit and reduce potential danger in all your projects.	2	Fundamental
<b>Transformers I - Electrical Characteristics</b>	This 1-hour interactive online course is the first part of a series of courses on electric distribution transformers. You can apply the information and methods you learn in this interactive course to develop new and modify existing transportation infrastructure. The expertise you acquire can add benefit and reduce potential danger in all your projects.	1	Advanced
<b>Transformers II - Standards</b>	This 2-hour interactive online course is the second in a series of courses on electric distribution transformers. In this part we will look at the basic electrical characteristics of transformers including how magnetism is used to create a voltage within the transformer. Characteristics such as how a transformer works, how the primary and secondary voltages and currents are related, how to calculate the transformer's regulation and efficiency, as well as the factors contributing to losses within the transformer are reviewed. Diagrams are presented that show the basic construction of a distribution transformer and the course includes a description of the common designs in use today such as shell-form designs, core-form designs, and the various three-phase designs. The course includes a multiple-choice test at the end.	2	Advanced
<b>Transformers III - Connections</b>	This 2-hour interactive online course is the third in a series of courses on electric distribution transformers. In this course we will review the various methods to classify transformers including cooling methods, protection schemes, and installation types. This course discusses transformer types, including oil filled and dry types, as well as the different types of transformer oils that are used. Both conventional and CSP transformers are reviewed. Standards, such as the insulation standard, short-circuit withstand, voltage rating identification, and terminal markings, are reviewed. Finally, transformer loading issues and methods to evaluate the cost of operating distribution transformers are discussed. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transportation Engineering: Introduction to Transportation, Planning, and Funding</b>	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental
<b>Understanding Concrete's Environmental Advantage</b>	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Understanding Construction Claims</b>	This 2-hour interactive online course provides a basic overview of the five different types of construction claims that a contractor might have against an owner: Delay, Changed Work, Labor Productivity Loss, Acceleration, and Termination. It defines each type of claim and the subcategories within each, as well as defining the crucial concepts associated with each. It also provides a basic introduction to the various methods for calculating damages related to each type of claim, emphasizing the importance of the project schedule as an evaluation and analysis tool. The course material is supplemented with summaries of actual cases to illustrate how courts and boards rule on the different types of construction claims. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Understanding the Energy Independence and Security Act</b>	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - Storm Water Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
<b>Uninterruptible Power Supply (UPS) System Efficiency</b>	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Wastewater Treatment and Reclamation: Asset or Liability</b>	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
<b>Water Industry Hydraulics</b>	This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application.	1	Intermediate
<b>Wind Design Using ASCE 7-10</b>	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 2: Effective Design &amp; Development</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental



## EIT Success (Continued)

Title	Description	Hours	Level
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction work-sites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

## EIT Success (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental

# Engineering

Title	Description	Hours	Level
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Energy Conservation Code - Commercial Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for commercial buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of commercial building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in commercial building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Energy Conservation Code - Residential Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for residential buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of residential building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in residential building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
2015 International Fire Code Essentials – Site and Building Services	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Special Processes and Building Uses	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Fire Code®: Significant Changes	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
2015 International Residential Code® Essentials – Code Administration and Site Development	Did you know that the International Residential Code® (IRC) is a comprehensive, stand-alone residential code that establishes minimum regulations for the construction of one- and two-family dwellings and townhouses up to three stories in height, including provisions for fire and life safety, structural design, energy conservation and mechanical, fuel-gas, plumbing and electrical systems? These codes serve primarily to protect the safety and welfare of the building occupants and the public. In addition to providing a better understanding of the code provisions and their development, the additional content of this course is organized to correspond to the order of construction, beginning with sitework. Structural topics include conventional footings and foundations (including the fundamentals of soil capacity). Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Health and Safety	The health, safety, and welfare of the dwelling occupants is of primary concern to anyone involved in the design, construction, or inspection of residential buildings. The International Residential Code® (IRC) sets minimum requirements for the most commonly encountered building practices. In this interactive, online course you will explore such topics as a safe means of exiting the building and protection from falls and from the hazards associated with breaking glass. The code also sets minimum room dimensions to support a healthy living environment. Other requirements in the code address fire safety and air supply and support concerns for chimneys and fireplaces. Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Protection, Utilities, Conservation, and Hazards	Protecting the public is an important part of your job. As part of its purpose statement to protect the health and general welfare of the public, the International Residential Code® (IRC) sets minimum requirements for durable interior and exterior finishes, as well as for providing weather protection. Permanently installed equipment and systems that control environmental conditions of a dwelling are significant in what you plan for and do. Part of this course will focus on common heating, ventilating, and air conditioning (HVAC) systems, gas-fired appliances and gas piping systems. The IRC also covers plumbing system design and installations typical of dwelling construction, as well as focusing on commonly encountered electrical installations for services, branch circuits, devices and fixtures in IRC-regulated buildings. Also addressed in this interactive, online course are the prescriptive methods of the IRC for effective use and conservation of energy through proper design and construction of dwellings and information on structural and environmental hazards often associated with dwelling and accessory building construction. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Residential Code® Essentials - Structural	When following conventional construction of residential buildings, protecting the safety and welfare of the building occupants and the public is a primary concern. But as a professional, you don't want to feel backed into a corner by standards. The 2015 International Residential Code® provides comprehensive, easy to use standards that afford the greatest design flexibility in recognizing other methods and materials of construction. This interactive, online course explains the difference between prescriptive and performance requirements. Prescriptive structural design requirements to resist the forces of wind, earthquake and snow are described and illustrated in an easy-to-understand way. Structural topics include conventional wood floor, wall and roof framing, and engineered wood products. Developed in partnership with the International Code Council®.	1	Fundamental
2015 National Design Specification for Wood Construction	In order to maintain the safety and welfare of the population in the United States, the structural design requirements as defined in the building codes are consistently updated. Traditionally this occurs in 3 year cycles. In 2015 the American Wood Council updated the National Design Specification for Wood Construction (NDS). As part of the update there were significant changes to the Special Design Provisions for Wind and Seismic (SD-PWS). The last significant change to the SDPWS occurred in 2008. This interactive online course will highlight the significant changes in the NDS including the addition of Cross Laminated Timber. Key criteria will be discussed and numerical examples will be provided illustrating the design changes.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>2017 NEC Changes: Communications Systems</b>	Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables.	1	Intermediate
<b>2017 NEC Changes: Special Equipment</b>	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate
<b>2017 NEC Changes: A New Process and Five New Articles</b>	The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids.	1	Intermediate
<b>2017 NEC Changes: Appliances and Equipment</b>	Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners.	1	Intermediate
<b>2017 NEC Changes: Branch Circuit, Feeder and Services</b>	Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	2	Intermediate
<b>2017 NEC Changes: Conductors and Wiring Methods</b>	Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT, 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays).	1	Intermediate
<b>2017 NEC Changes: Enclosures and Boxes</b>	Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2017 NEC Changes: Hazardous Locations</b>	Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	1	Intermediate
<b>2017 NEC Changes: Overcurrent Protection and Grounding &amp; Bonding</b>	Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others.	1	Intermediate
<b>2017 NEC Changes: Receptacles and Switches</b>	How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles.	1	Intermediate
<b>2017 NEC Changes: Special Occupancies</b>	The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced
2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced
2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy	This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	1	Intermediate
2020 NEC® Changes: Branch Circuit GFCI Protection	Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210.	1	Intermediate
2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures	This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	1	Intermediate
2020 NEC® Changes: Devices, Lighting, and Gear	This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	1	Intermediate
2020 NEC® Changes: Equipment for General Use	This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries.	1	Intermediate
2020 NEC® Changes: Focus on Wiring Methods	This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings.	1	Intermediate
2020 NEC® Changes: General Requirements	The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space.	1	Intermediate
2020 NEC® Changes: Overvoltage and Grounding & Bonding	This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications.	1	Intermediate
2020 NEC® Changes: Process Review and Updated Articles	This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems.	1	Intermediate
2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems	Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources.	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>2020 NEC® Changes: Special Equipment</b>	Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on underfloor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring.	1	Intermediate
<b>2020 NEC® Changes: Special Occupancies</b>	The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations.	1	Intermediate
<b>2020 NEC® Changes: Wiring and Protection</b>	Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection.	2	Intermediate
<b>A Better Construction Contract</b>	This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed. A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>A Hydrology Primer for Engineers and Design Professionals</b>	Many design professionals were introduced to hydrology concepts when they started their careers. But the science and terminology of hydrology continues to evolve. Engineers and other design professionals need to understand hydrology concepts in order to design appropriately. This online interactive course gives you the hydrologic cycle, types of natural storage and infiltration, recharge and base flow, surface runoff, peak rates of flow, I-D-F curves, hyetographs and hydrographs, runoff volume, NRCS hydrologic soil groups, and concentration, as well as a lengthy discussion on the differences between the Rational Method and the federal peak flow methods (using TR-20 and 55).	2	Intermediate
<b>A Professional Engineer's Standard of Care</b>	The public has the right to expect that professional engineers will exercise their knowledge and skill in a manner consistent with good moral behavior. In this interactive online course, we will explore the ethical requirement for professional engineers to meet an agreed-upon standard of care. We will discuss this standard of care and explore the importance of ethical behavior and ethical practice in terms of our responsibility to the public.	1	Intermediate
<b>A Wetland Primer for Design Professionals</b>	An understanding of wetlands is increasingly important for design professionals, including architects, engineers, land surveyors and landscape architects. This 1-hour online course will acquaint you with the changed perception of wetlands in North America, contemporary definitions of wetlands and types of wetlands found on this continent. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>A Wetland Primer, Advanced: Field Evaluation &amp; Permitting Considerations</b>	This 2-hour interactive online course is a follow-up to 'A Wetland Primer For Design Professionals' by the same author. Although a basic understanding of wetlands--crucial for architects, engineers, land surveyors and landscape architects--is mastered in that first course, design professionals often need a broader understanding of why wetlands play an increasingly important role in site considerations, and how they are identified. This course does exactly that, in a easily understood series of steps. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Accessible Design: Curb Ramps, Ramps, and Elevators</b>	Curb ramps, ramps, and elevators make the world an easier, more accessible place for not only people with disabilities, but everyone as a whole. Though they may be a small thing, curb ramps are one of the easiest things to use to demonstrate that accessible features benefit everyone, not just people with disabilities. A curb ramp may enable someone in a wheelchair to cross a street, but it will also help an older person who walks with a cane, or a parent with a young child in a stroller, or a perfectly healthy, able-bodied, young person with a cart or dolly stacked with groceries or boxes. Ramps and elevators provide the same level of easy access for greater changes in elevation. This interactive online course illustrates how you can include these designs into your built environment to create accessible spaces for everyone.	1	Fundamental
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: Ground and floor surfaces (302) Changes in level (303) Wheelchair turning space (304) Clear floor space (305) Knee and toe clearances (306) Protruding objects (307) Reach ranges (308) Operable parts (309)	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501) Parking Spaces (502) Passenger Loading Zones (503) Stairways (504) Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>ADA Guidelines 2010: Recreational Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including: 1001 General 1002 Amusement rides 1003 Boating facilities 1004 Fishing piers and platforms 1005 Miniature golf courses 1006 Golf courses 1007 Exercise equipment 1008 Bowling lanes 1009 Shooting facilities 1010 Swimming pools, wading pools, and spas ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: Small Towns</b>	People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Achievable Barrier Removal and Accessibility (B)</b>	The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>Advanced Stormwater Treatment: Design</b>	This 3-hour interactive online course leads the student through evaluation and design of stormwater treatment systems. Stormwater management is receiving increased scrutiny because of EPA Phase II regulations. It is assumed that the student already has a working knowledge of stormwater management, either through prior experience or the RedVector.com course, Introduction to Stormwater Management. Most of the information presented is available from public reports and vendor websites. A multiple-choice quiz will be presented at the end of each section of the course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Advanced Stormwater Treatment: Nutrient Removal</b>	This 1-hour interactive online course presents the latest information on nutrient removal from stormwater. Stormwater management is receiving increased scrutiny because of EPA Phase II stormwater regulations, and nutrients such as nitrogen and phosphorus are among the chief stormwater concerns. All of the information presented is available in more detail from public and vendor reports and websites. Understanding stormwater management and nutrient removal is an essential skill for engineers, scientists, developers and regulatory authorities. A test will be presented at the end of the course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Adverse Possession: An Advanced Course</b>	Adverse possession is a legally recognized way, or method, of taking title to property by physical occupation. It is always a hostile act. Based on ancient principles of common law, adverse possession is defined by statute on a state-by-state basis. In all states, possession must run for a statutory period, and the adverse claimant is charged with the burden of proof. Boundary surveyors must be familiar with this doctrine, as retracement surveys are frequently complicated by claims of adverse possession. A survey of original property lines cannot, by itself, revive the rights to land lost in adverse possession. Understanding the elements of adverse rights-with an awareness that variations exist between state laws-is critical. The appearance of surveyors in court is often triggered by issues of adverse possession, with attorneys relying heavily on surveyors as experts in what is often a difficult legal doctrine. This 2-hour online course reviews the historic concepts of adverse possession, the statutory character of these actions, and the burden of proof against the claimant. This course examines the effect of surveys on such claims, exemptions to claims of adverse possession, and the well established elements of adverse possession. The course also discusses the doctrine of prescription and its relationship to adverse possession. Using various examples both from classic texts and the author's experiences, the course examines statutes of limitations, color of title, and a surveyor's explicit duties to clients and courts. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Designing Presentation Visual Aids</b>	Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids.	0.5	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>AEC Success: Improving Organization and Productivity</b>	In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management.	0.5	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Obtaining the Right Credentials in Your Career</b>	Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever.	0.5	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>Akin v. Godwin - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>American Land Surveying - A History</b>	American Land Surveying has a grand and sometimes tumultuous history. Bold personalities have been attracted to the work. George Washington, Thomas Jefferson, Daniel Boone, Abraham Lincoln, Henry David Thoreau all worked as surveyors. Theirs were often the original footsteps which surveyors for generations afterward have retraced. This interactive online course traces that history from Ancient days to today. This course also covers early surveying instruments and texts, metes and bounds descriptions, forms of monumentation, Federal and State surveyor regulations, differences between civil engineers' surveys and surveys by boundary surveyors, and an overview of land surveying university programs, state licensure and accreditation.	2	Fundamental
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Anatomy of Construction Defects</b>	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate
<b>Architect and Engineer Design Coordination</b>	As with all things that require several members to work together, coordination-or lack thereof-can have a tremendous impact on the outcome. When many skillful individuals work together it is very useful to follow a methodological approach when coordination and communicating with each other. This 1-hour interactive online course will analyze project scopes, scheduling, quality control, and the permitting process, all items that will need to be coordinated before and during the design of the project. You will be armed with all the knowledge and skills you need to coordinate and communicate effectively throughout your organization. Use this course to enable a successful project, all the way from the pre-proposal to final construction.	1	Fundamental
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>ASHRAE Essentials: 55-2017 – Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Asset Condition Management: Alignment and Balancing Training</b>	Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures.	1	Intermediate
<b>Asset Condition Management: Motor Testing</b>	Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors.	1	Intermediate
<b>Asset Condition Management: Setting Up an Oil Analysis Program</b>	Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel.	0.5	Intermediate
<b>Asset Condition Management: Vibration Analysis Training</b>	Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring.	1	Intermediate
<b>AutoCAD 2014: Part 1 - Introduction</b>	AutoCAD® is the world's leading software for producing technical drawings or computer aided design and drafting. AutoCAD® has become the global industry standard for technical and engineering drawings. This course presents a hands on introduction to the AutoCAD® 2014 program and is the first in a series of courses on the 2014 release. You will be introduced to the AutoCAD® 2014 program and take a look at it's basic features. You will also get an introduction to drawing basic shapes and lines. This course includes a practical application where you will get to complete real world examples using the AutoCAD® program.	2	Fundamental
<b>AutoCAD 2014: Part 2 - Editing Techniques</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands-on introduction to the AutoCAD® 2014 program and is the second in a series of courses on the 2014 release. In this course, you will be exploring the AutoCAD® 2014 program in more detail and looking at layers, object properties, modifying objects, and adding text annotation to drawings. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 3 - Editing &amp; Construction</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® 2014 program and is the third in a series of courses on the 2014 release. In this course, we shall cover construction lines, auto mode, hatching, dimensioning, and setting up dimension styles. We will have a practical application where we apply all of the above to a real-life situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® 2014 software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 4 - Drawing Aids and Utilities</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands on introduction to the AutoCAD® 2014 program and is the fourth in a series of courses on the 2014 release. In this course, we will look at how to create and work with groups, blocks, annotation, and utilities. We'll look at how to set up and use the coordinate systems. And then, we shall have a practical application where we apply the above to a real life problem. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>AutoCAD 2014: Part 5 -Template, Layouts, and Viewports</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the fifth in a series of courses on the 2014 release. In Part 5 of our lecture series on AutoCAD® 2014 we shall cover layouts, layout templates, viewports, plotting, exporting, and at the end we shall have a practicum. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 6 - Advanced Editing &amp; Annotation</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the sixth in a series of courses on the 2014 release. In Part 6 of our series on AutoCAD® 2014, we shall cover arrays, annotation scaling, external references, and then we'll have a practical problem where we'll apply these to a real-life engineering situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>Barba v. Walker - A Dave Gibson Public Lands - Related Case</b>	This 2-hour interactive online-course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for PUBLIC LANDS-RELATED parcels. It introduces many of the principals of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6 hour course titled 'Dave Gibson's All Star Public Lands-Related Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Basic Financials for Land Surveyors</b>	Many land surveyors are excellent at land surveying, as you would expect, but completely helpless when it comes to operating a business. Surveyors, like other professionals, should not be expected to be expert business people. However, many surveyors are engaged in private practice, or intend to be at some point in their careers, and it is vitally important to understand how to measure the success of the business enterprise. Thus, they need to know about financial statements, the measurement of business success, and the analytical tools to accomplish profitability; they are the measurements necessary to determine the health of the business and to guide managers in making changes to allow attainment of financial objectives. This 1-hour interactive online course is an introduction to the basic financial statements needed to operate a small land surveying business, and a brief overview of their use. This course includes a multiple-choice quiz at the end. This course also includes a downloadable Excel file. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations. We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Basics of Soil Resources 1: Classification, Mapping and Data Bases</b>	The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations; 99.7 percent of human food comes from cropland, which is shrinking by more than 10 million hectares (almost 37,000 square miles) a year due to soil erosion. This 2-hour online course discusses soil as a complex, dynamic, biogeochemical system that is the principal substrata, vital to every life cycle of terrestrial vegetation and organisms. Soil serves as a reservoir of water and nutrients as well as a medium for the filtration and breakdown of wastes. Faced with climatic changes, increasing population and rapid decreases in the extent and quality of the soil resource base, the global community must now take stewardship of the resource most immediately linked to our survival.	2	Fundamental
<b>Basics of Soil Resources 2: Erosion, Desertification, Salinization &amp; Soil Acidification</b>	This course focuses on the topics of erosion, desertification, salinization and soil acidification. These are issues that affect all life on earth. 70% of earth's land capable of supporting agriculture has suffered erosion and soil degradation. This has a direct impact on the chemical cycles of life, the atmosphere, water and food supplies of the entire planet. The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations. Soil and land resources are generated, developed and renewed within a geologic time frame, in processes that take hundreds of thousands or even millions of years. The span of human history is measured in some thousands of years. For this reason, land resources must be regarded as essentially non-renewable. It is therefore exceptionally important to adopt a proactive approach to conservation and sustainable management of these critical resources.	2	Fundamental
<b>Basics of Water Resources: Groundwater Contamination</b>	Since the 1970s there has been a disturbing discovery of hazardous wastes in ground water. Early discoveries of sites such as Love Canal in New York and the Denver Arsenal in Colorado initiated a new era in groundwater studies. Throughout the 1980s numerous studies of abandoned waste sites, spills and leaking underground storage tanks became headline news. Groundwater hydrology is now critical to understand the mechanisms and rates of transport of physical, chemical and biological contamination below the ground, and the impact of those contaminants on the ground water supply. This 2-hour interactive online course covers the fundamental sources and classifications of groundwater contamination. The course focuses on the discussion of natural and man-made sources of groundwater pollution and gives some perspective into various systems of categorization and classification. The RedVector course entitled Basics of Water Resources: Groundwater Hydrology covers the introduction to the hydrologic cycle and the basic terminology of groundwater. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Basics of Water Resources: Groundwater Hydrology</b>	This 1-hour interactive online course covers the fundamentals of water supply hydrology. From the hydrologic cycle to the nature and character of groundwater as it goes from recharge zones to discharge points, the basic concepts and terminology are introduced in a clear and easy to read form. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Basics of Water Resources: Wetland Basics</b>	Once perceived as worthless, wetlands are now known to be vital to water quality, erosion control, species diversity, biological productivity and even climate. Their form and function involves a complex interaction between geological setting, hydrology and climate. Their reaction to and interaction with human activity in a region will determine the future of humans in that region, since they ultimately play a role in water quality, flood control, pollution and climate control as well as providing food and recreational resources. This 3-hour interactive online course covers the fundamentals of wetlands. Keywords: wetland, hydrology, climate, flood control, water quality, pollution, climate control, ecology, species diversity, biological productivity, environment, environmental, hydrologic cycle, chemical cycles, swamp, bog, fen, Clean Water Act, Section 404 Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Battery Applications</b>	This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material.	3	Intermediate
<b>Best Practices for Creating Superior Land Description Plats</b>	This course will define Best Practices for Creating Superior Land Description Plats. It will first describe the intent and purpose of any plat, then briefly review historic practices, basic mapping requirements and minimal data required to record a plat throughout North America. The course will then shift from review to recommendations that will guide a surveyor step by step through the creation of exceptional maps. Recommendations will include a checklist of essential elements that exceed the usual state-required minimum mapping requirements. An important part of the course will be a discussion of the surprising benefits that arise from creating outstanding plats, which include decreasing your own liability as well as aiding surveyors who may walk in your footsteps on some future date.	1	Fundamental
<b>Better Roadway Design - Curbs &amp; Pedestrian Control Devices</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of edge treatment/delineation of curbs, curb radii, and pedestrian control devices at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Better Roadway Design - Intersection Signalization</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subject of signalization for turning movements at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Better Roadway Design - Intersection Signing</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour online course covers the subjects of signing at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Better Roadway Design - Intersections</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of reaction times and driver performance that may not be realistic. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour interactive online course covers the subjects of intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Better Roadway Design - Lane Assignment, Signals &amp; Lighting</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of devices for lane assignment on intersection approach, traffic signal performance issues and fixed lighting installations at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Biofilters: A Natural Approach to Storm Water Pollutant Removal</b>	Bioswales and constructed wetlands are under increasing use to address pollutants in storm water runoff. However, many installations of these BMPs have failed or have not been as successful as hoped. This interactive online course provides a discussion of the concepts of biofilters. Most of the failures can be attributed to insufficient information being available or to bad or no expert input into the design, construction, vegetating, or maintenance of the bioswale or constructed wetland. This course is intended to provide information on the design and use of biofilters so that designers will be able to make better decisions on the design, construction, implementation, and maintenance of these Best Management Practices.	2	Intermediate
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Boundary Disputes Between Adjoining Land Owners: Resolutions, Practices &amp; Procedures</b>	This course will focus on boundary disputes between adjoining land owners. Such conflicts are not uncommon, and the land surveyor often plays a key role in resolving them. As a licensed professional, the surveyor is viewed as a neutral party, and able to uphold the principle that boundary surveying is a property line between two parties, and not solely the line determining property of the surveyor's client. As such, the public has the expectation that resolution will be both correct and honorable. This course will examine protocols for the professional to follow when encountering disputes between abutters.	1	Fundamental
<b>Boundary Monuments: Artificial and Natural Markers</b>	Land surveying has a rich—and sometimes quirky—history of using monuments that were particular to a given region like wood stakes, iron pipes, and wheelbarrow axles. As a surveyor, you need to know the differences between natural and artificial boundary monuments. This interactive online course gives you a brief history of boundary monuments; legal principles of permanence, visibility, and accuracy; and a discussion of the ideal monument.	2	Intermediate
<b>Brayton Cycle Analysis</b>	The ideal cycle for the simple gas turbine is the Brayton Cycle, also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the T - s diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs.	1	Intermediate
<b>Bridge Inspection and Maintenance: Laws and Requirements</b>	Bridge Inspection has become a serious issue in the United States. Structurally deficient and/or functionally obsolete bridges constitute one fourth of the Nation's bridge inventory. The cost of road and bridge improvements is estimated to be over \$200 Billion. In this environment, bridge inspection is a very important factor in the general safety and welfare of all Americans. This 2-hour online course explains the law impacting bridge inspection as well as the general requirements of an inspector. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Building a Sustainable Future</b>	Over 7 billion people now inhabit the earth, placing unprecedented pressure on the planet's soils, waters, forests, and other natural capital. The majority of the global population lives in urban areas, where their interactions with nature, and the benefits that these interactions provide, commonly occur in small-scale sites and residential settings. Most often, these landscapes are treated as inconsequential, and their full potential to mend humanity's environmental offenses and improve our quality of life is commonly overlooked. This course illustrates the importance of creating regenerative and resilient systems that increase the provision of ecosystem services. Site sustainability is defined, and the value of education about sustainability and stewardship toward our built and natural ecosystems is discussed. The importance of instilling a love of nature in our children is examined, in addition to the monitoring and adaptive management of ecosystems so maintenance practices can be continually adjusted to improve the overall function of the site. The purpose of this course is to elevate the discussion of sustainability beyond doing less bad—attempting to merely slow down environmental degradation—to create regenerative sites that restore ecosystem function and rebuild the earth's natural capital. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Building Codes, Sustainability, and Structural Systems</b>	Because the health of the aging can be precarious and their safety is paramount, senior housing and care facilities are very carefully regulated. Federal and state governments subject some new projects to codes that govern program areas and the construction of all the major building systems. In addition, most states have detailed regulations written specifically to govern certain senior housing and care building types, including nursing homes, adult day care, outpatient diagnostic and treatment facilities, and some forms of assisted living. These regulations cover everything from space and environmental standards to resident rights and staffing requirements. This course covers building codes, structural systems, and sustainable building design for senior housing and care facilities. Federal, state, and local codes and regulations will be discussed, including safety and accessibility requirements. Selection of appropriate structural system or combination of systems, and the incorporation sustainable design principles into the senior housing and care facilities will also be covered in this course. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Building Systems for Designers - Advanced Acoustic Design Principles</b>	Achieving good acoustics has become increasingly difficult for a variety of reasons. Some of those reasons are budgets with low construction budgets, weight of various materials, and an increase in open areas and a higher density of employees in the office. Interior designers can have a profound effect on the acoustical quality of an interior environment. In this course we will look at Sound absorption and Sound Transmission Between Spaces, examine all types of environments from offices, schools, and performance centers. We will examine how sound in one space can be reduced within that space as well as what determines how much sound that travels to an adjoining space will be heard. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Advanced
<b>Building Systems for Designers - Electrical Appliances and Communications Equipment</b>	As we all know from talking with parents and grandparents and from watching old movies and TV shows, technology at home and in the office has changed considerably. Many of the items we consider necessities in our modern world would seem like magic to our ancestors. This course will give you the evolution of our most commonly used appliances as well as current information to use in designing for today's homes and offices. We'll focus on kitchen appliances, laundry equipment, and data and communications wiring. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Electrical Systems Basics</b>	Our reliance on electricity has serious implications for environmental quality and resource conservation. Lighting consumes 25 to 30 percent of the energy used in commercial buildings. This adds heat to a building's interior and increases energy use for air conditioning. In this course we will review basic principles of system design and the various sources of power. We'll also explore the design process, system components, and end-point devices. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Fire Safety</b>	Most deaths caused by building fires occur in homes, yet the National Fire Protection Association reports that only about 23 percent of households have actually developed and practiced a home fire escape plan to ensure they could escape quickly and safely. When fires occur in high-rise buildings, great numbers of persons are required to travel vertically down stairs in order to evacuate so it is especially important to have a plan for evacuation. This course covers how building interiors are designed to prevent fires and help people escape. This is, perhaps, the most valuable information that interior designers should know about building systems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts.... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will effect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counteract these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Introduction to Acoustic Design Principles</b>	Interior designers' experience the world in a strongly visual way, they are often deeply affected by messages received by their other senses as well. Perhaps the most critical of these is the sense of hearing. Sound in a well-designed space reinforces the function of the space and supports the occupants' experience. A poorly designed acoustic environment hinders both the function and the enjoyment of the space, and it can even damage the health of the user In this course we will take a look at the effect that sound can have on the environment. In this course, we will explore the world of sound and the effect it has on building materials and the people occupying the space. We will look at the designers roles and how to deal with Interior Acoustics Design Issues. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Building Systems for Designers - Lighting Systems</b>	All interior design projects start with an investigation of existing conditions. The location of an interior project within an existing or newly designed building, whether at the perimeter or at its center, affects light, view, and energy demands. Interior design schools routinely offer full-semester courses on lighting design. It is not the purpose of this course to try to cover all of the facets of lighting design to the degree that a lighting course would. Instead, we will look at how the current approach to lighting developed as well as how current lighting design practices affect relationships between architects, engineers, lighting designers, and interior designers. We will also look at and controls and will consider practical fixture requirements and lighting system maintenance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Principles of Thermal Comfort</b>	In Regenerative Design for Sustainable Development, John Tillman Lyle writes, To control the flow of energy within a building, the materials and the details of their assembly must augment the form. Five elements of a building are particularly important for their roles in the thermal regime... This course explores those five elements and how they determine thermal comfort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Structural Systems</b>	Although your work as an interior designer is concerned with interior spaces, you will benefit from an understanding of the way buildings are constructed. Why they stand up or fall down, and how different building techniques affect the shaping and utilization of interior space, should be areas of interest to you. In this course we will cover three major areas: Basic Structural Principles and Elements, Structural Forms, and Horizontal Structures and Vertical Movement. We cover everything from superstructure and foundation to windows and walls to horizontal and vertical conveyance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Toilet and Bath Design</b>	In this course, we will touch upon the history of plumbing specifically related to bathrooms, which will lead to the various regulations and standards that must be met in the design and placement of toilets, urinals, bathtubs, sinks, and drinking fountains. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Water Supply, Distribution, and Waste Systems</b>	In this course, we will learn how water gets from its original source to our homes and offices and how it is disposed. We will also cover the various components that make it possible. Additionally, we will learn about efforts currently being made to be more water efficient. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers: The Building and Its Environment</b>	Although interior designers are primarily concerned with the conditions inside buildings, they benefit from observing a building's site, climate, and geography. Interior spaces are increasingly blended with their natural settings. Wise energy use dictates awareness of how sun, wind, and cold affect the building's interior. Interior designers today are working as part of environmentally aware design teams that blend knowledge of interior design principles with an understanding of a building's natural surroundings. This interactive online course examines the connection between a building's interior and exterior environment and the influence of external weather and site conditions on a building envelope. Sustainable design strategies will be discussed, as well as building codes and regulations. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Business Rules for Land Surveyors</b>	This 2-hour online course gives the student a strong background in fundamental principles of managing a land surveying business that are commonly not applied. These are basic rules that are more common sense than anything else, but represent 30 years of business experience by the Author. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Carbon Tracking/Reduction Strategies for Facility Design and Operations</b>	Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like net zero energy are gaining mainstream traction and help account for the design/reuse of facility's energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three Scopes, and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority.	2	Intermediate
<b>Centrifugal Pump Components</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump.	0.5	Intermediate
<b>Centrifugal Pump Curves and Theory</b>	A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task.	0.5	Intermediate
<b>Centrifugal Pump Fluid Mechanics</b>	Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements.	0.5	Intermediate
<b>Centrifugal Pump Operations and Maintenance</b>	Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump.	0.5	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
<b>Centrifugal Pump Selection and Sizing</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs.	0.5	Intermediate
<b>Centrifugal Pump System Components and Design</b>	The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance.	0.5	Intermediate
<b>Choosing the Best Structural Lateral Force Resisting System</b>	The decision of the lateral force resisting system for a building should be made by the structural engineer and the architect. The decision is based on a multitude of factors including structural performance, integration with architectural systems, integration with mechanical systems, constructability, and cost. This course will investigate several common lateral force resisting systems; steel moment frames, steel braced frames, wood shear walls, concrete shear walls and compare the suitability of those systems for use in low-rise buildings. Metrics will be developed to assist in the decision making process. Use of those metrics will be explored through examples.	1	Fundamental
<b>Coastal Engineering: Hurricanes and Nor'easters</b>	What is the difference between a hurricane and a nor'easter? What kind of damage can they cause to your building project? Hurricanes and nor'easters can be destructive natural events creating high winds, storm surge, large waves, and causing large amounts of erosion, jeopardizing structures built along the nation's coastlines. This interactive online course will provide information about how to build to better resist the effects of these storms, what foundation types perform better, and why these storms are so damaging to the built environment. A few case studies will be included to illustrate techniques that are known to improve building performance.	2	Intermediate
<b>Coastal Engineering: Sea Level Rise</b>	What are some causes of sea-level rise? Is it impacting all coastlines? Sea-level rise is a very real flood condition that has caught the attention of many coastal communities around the U.S. This interactive online course will provide information about the potential magnitude of this rising water, the planning required to better resist the effects of this rising water, and why sea level rise can be so damaging to the built environment. A few case studies will be included to illustrate what is being done around the country to combat this serious climate change issue.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Combustion Analysis</b>	Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichiometric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented	1	Intermediate
<b>Commercial &amp; Residential Mixed Use Development and Sustainability</b>	This interactive webcast focuses on the sustainable nature of mixed-use development. Flexible building use gathers multiple functions into a single structure to redefine sustainable growth in the 21st century. Originally, energy was the main focus in creating buildings that were in harmony with the environment. Although focus on energy and resource conservation remains, the focus has expanded to include the concept of flexibility and density. This course also focuses on the various environmental, economic, and social benefits of providing combined commercial and residential space including; water use reduction, energy conservation, infrastructure cost, infill development, and land preservation. In addition, this course also looks at new sustainability initiatives that look outside the building envelope for sustainable opportunities (e.g., LEED Neighborhood Development, Sustainable Sites Initiative).	2	Fundamental
<b>Commercial Building MEP Design</b>	This 1-hour interactive online course details the steps that can be taken to begin the Mechanical, Electrical and Plumbing (MEP) design of a typical commercial building. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental
<b>Complete Streets - An Introduction to the Complete Streets Concept</b>	This course presents an introduction to the fundamental principles of Complete Streets. The planning and development of Complete Streets projects is presented. You will also learn about the elements of planning for Complete Streets and designing and implementing Complete Streets programs.	2	Fundamental
<b>Complete Streets - An Introduction to the Design of Complete Streets</b>	Complete streets are roads and streets designed and operated to provide safe access for all users, including motorists, bicyclists, pedestrians, and transit riders. Complete streets enable users of all ages, and all physical abilities to safely move along and cross an urban street. This course presents in detail elements of design for complete streets such as intersection design guidelines, modern roundabouts, pedestrian treatments, and bicycle lane guidelines. Each element will be described in terms of the general principles, design considerations, and recommended practice. A variety of case studies will be presented.	2	Intermediate
<b>Compressed Air Systems in Industrial Plants</b>	This three-hour course discusses the application of compressed air systems in industrial plants. The course covers the different types of compressor systems used today. In addition to the compressor, the course covers the components of a compressed air system including dryers, receivers, traps, intercoolers, etc. Applications of compressed air systems are discussed and the economics of using compressed air are reviewed. This course will benefit anyone who uses, recommends, designs, or just wants to know more about the various types of compressed air systems that are used in industrial plants. There is a multiple-choice quiz consisting of thirty (30) questions at the end of the course to obtain PDH credits.	3	Intermediate
<b>Compressed Air Systems: Introduction to Performance Improvement</b>	Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Compressible Flow Components Analysis</b>	The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends.	1	Intermediate
<b>Concrete 1: Evaluation and Causes of Damage</b>	When taking on a concrete repair project, the first step is an important one - conducting a thorough evaluation. This 1-hour interactive online course begins with techniques for surveying the condition of the concrete, and reviews design and construction documentation, operation and maintenance records, instrumentation data, visual examination, methods of nondestructive testing and laboratory specimen analysis. The second part of the course identifies basic causes of deterioration, and covers typical symptoms, and recommendations for preventing further damage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 2: Repair Planning and Preparation</b>	The success or failure of a concrete repair project is dependent on many things, including how well you plan and prepare for the project. This 1-hour interactive online course discusses factors that should be considered before selecting a concrete repair method, as well as steps that should be taken to prepare the site before the actual repair begins. The first section of the course discusses the properties of repair materials and the concrete substrate, along with a review of important factors at the repair site itself. The second section discusses removal of concrete, and preparation of concrete surfaces for further work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 3: Methods, Materials, and Maintenance</b>	When a concrete structure fails, it requires repair. However, if not done correctly, the repair can also fail. This 2-hour interactive online course explains various methods and materials for the repair and maintenance of concrete structures. The first portion of this course describes materials and methods that are available for repair or rehabilitation of concrete structures, including their applications, limitations, and procedure. The second section of the course describes materials and procedures appropriate for cleaning and protecting concrete surfaces. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Concrete Additives: Water-Repellency &amp; Efflorescence Control in Masonry</b>	About 90% of the surface area of a masonry wall consists of concrete masonry units, with mortar joints making up the remaining. Both concrete and mortar are porous materials and, hence, can permit the passage of water through them. Therefore, a water-repellent masonry system should prevent the entry of water through both the concrete masonry units and the mortar joints. This 2-hour interactive online course provides the details of achieving water-repellency and efflorescence control in masonry construction. While the focus is on single-wythe masonry walls, the admixture technologies presented are applicable to other manufactured concrete products such as pavers and roof tiles.	2	Fundamental
<b>Concrete Fundamentals: An Introduction</b>	Are your customers or clients using words like slump, water-cement ratio, cement content, and compressive strength? Do you understand admixtures and their functions? How about reading and understanding a mix design? Do you know how to place and finish concrete? This 2-hour online course introduces the student to the basic fundamentals of concrete. This course includes a multiple-choice quiz at the end.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Concrete Pavement Rehabilitation - Partial Depth Repair</b>	This 1-hour interactive online course recommends procedures for selecting, designing, and construction of partial depth repair of Portland cement concrete pavements. Partial depth repair is a concrete pavement restoration technique that corrects localized distress such as spalls, scaling, and popouts in concrete pavements. Partial-depth repair improves the rideability of jointed concrete pavement. Partial-depth repair can be used as a stand-alone rehabilitation technique. However, the Federal Highway Administration recommends its use as part of a comprehensive Concrete Pavement Rehabilitation (CPR) program. Information regarding cost and performance is also included in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete Pavement: Glass Fiber Reinforced Polymers</b>	While we're driving on them everyday, the roadways are experiencing stress. When force is applied to concrete pavement it places a certain level of stress on the concrete. It cracks, wears away, and requires costly repairs. Steel-reinforced concrete pavement (CRCP) has been used since 1921 - it's time for a better way. This 1-hour interactive online course gives you the information and the methods to improve the strength of concrete pavements using Glass Fiber Reinforced Polymer rebar. You will see why concrete fails and learn a new way to prevent it. You'll be introduced to fiber reinforced polymers. With these formulas and designs you will build longer lasting, more durable roads.	1	Fundamental
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Concrete: Self-Consolidating (SCC)</b>	Self-Consolidating Concrete (SCC), also called self-compacting concrete, is a revolution in the field of concrete technology. SCC is a very fluid, high strength concrete that flows like water, compacts with little or no vibration, does not segregate, and is self-leveling. Products made with SCC have an excellent finish, and are virtually free of bug holes or honeycombing. Introduced to the concrete industry by the Japanese in the late 1980s, it is just now coming into its own in North America. This 1-hour interactive online course introduces the student to this new concrete product. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
<b>Constructed Wetlands - Free Water Surface Wetlands</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a free water surface constructed wetland. This 3-hour online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a free water surface wetland, and includes several design examples. Construction issues unique to constructed wetlands are also discussed. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Constructed Wetlands - Introduction &amp; Basic Concepts</b>	Constructed wetlands can be used as artificial wastewater treatment systems. This 2-hour interactive online course provides an introduction into constructed wetlands, their history, common misconceptions and some guidance on when to use constructed wetlands. Also, the basics of constructed wetlands, including ecology, botany, and fauna of constructed wetlands will be discussed. This course includes sections on ecological concerns, human health concerns, on-site applications, and an extensive list of frequently asked questions. This course is based on guidance documents published by the Environmental Protection Agency and provide general information for non-technical individuals such as decision makers and stakeholders, along with design engineers. This course includes a multiple-choice test at the end of each section. This course includes downloadable pdf files. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Constructed Wetlands - Pollutant Removal Mechanisms</b>	Constructed wetlands can be used as an artificial wastewater treatment system. This 2-hour interactive online course covers the details of how suspended solids, organic matter, nitrogen, phosphorus, pathogens and other contaminants are separated and transformed in constructed wetlands. These processes are generally different between constructed wetlands and standard wastewater treatment systems. This course also includes a discussion on modeling performance of constructed wetlands and guidance on models that should be used. Additional RedVector.com courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. There is a test and the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Constructed Wetlands - Vegetated Submerged Beds</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a Vegetated Submerged Bed constructed wetland. This 2-hour interactive online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a Vegetated Submerged Bed wetland, and includes a design example. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Construction Claims: Changed Work</b>	This 2-hour online interactive course provides a basic understanding of types of changes in work—directed or constructive change—and changed conditions. It provides an in-depth examination of cumulative impact, emphasizing how to identify types of change-related impacts, that includes a detailed discussion of the Leonard Study. In addition, it discusses how to address cumulative impact and assess allowance for recovery. Summaries of actual court cases are incorporated into the course to illustrate how changed work claims are determined. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>Contract Guide for Design Professionals - Basic Principles</b>	This course is written primarily for the design professional - architects, engineers, and other persons that provide professional opinions and services for construction projects. The discussion of contract clauses in this course is intended to provide general information and education for use on traditional design-bid-build projects and does not necessarily apply to the design-build method of contracting. This is because the expectations of the parties on design-build projects are generally different than those on design-bid-build projects. Also, the terms and conditions of contractual agreements on those projects will reflect those different expectations—resulting in a different allocation of risk between the parties. Nevertheless, for a few of the key terms and conditions, a brief discussion of risk allocation and risk management on design-build projects is included in this course. In a similar manner, although this course is focused on traditional commercial projects, brief discussions of clauses and risk management issues germane to Environmental Remediation contracts are included. This course outlines a number of the contract clauses most often identified by construction lawyers and professional liability insurance carriers as requiring particular attention with regard to risk allocation.	3	Fundamental
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Critical Facilities - Emergency Electric Power</b>	Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events. This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable.	2	Fundamental
<b>Data Centers: Connectivity Requirements and Architectural Layouts</b>	Once a site for a data center has been identified and acquired, the multi-year process of design, construction, testing & commissioning, and equipment installation begins. Data Centers are resource hogs - but above all, they require tremendous amounts of power and data communication to operate effectively and efficiently. Appropriate network (power & communication) designs are essential; robust and redundant facilities are mandatory to a 24x7x365 uptime environment. Housing this equipment through appropriate site (Civil) and super-structure (Structural) design and construction efforts is the first layer of defense against network or equipment failure. So, what does it take to make a data center run reliable? In this course, we will review the connectivity demands and requirements for fiber and power, as well as some of the best practices for architectural and structural layouts in modern data centers.	1	Intermediate
<b>Data Centers: MEP, Fire Protection, and Equipment Rooms</b>	Connectivity. The internet of things. Uptime. Reliability. What are these things? These are all terms and concepts that relate to the always connected, always on world that has evolved out of the digital age. The cornerstone of these concepts is the modern data center - massive, hulking, and also secretive buildings that house the hardware, firmware, and software that power our everyday lives. Email, phone calls, Facebook, Google - these are all services provided by the computers housed in data centers. They are located all over the country and the world. They are in high rise buildings in dense urban areas, and they are located in remote rural campuses. They are small, occupying a few thousand square feet in old, Tier I locations, or they can be massive, hundreds of thousands of square feet with 50MW of electrical power. These technological marvels require significant infrastructure to maintain the always-on, always-available status that we demand of services in the modern world. That level of reliability is not achieved through chance. Significant effort and expense is required to facilitate conditions that are conducive to 24x7 reliability. Not the least of which are Mechanical, Electrical, Fire Protection, and Security Systems for these centers. In this course, we will dive into the complexities of these systems. By the end of this course, you will be familiar with the unique language and terms used to discuss the various elements of these systems - like PDU, UPS, EUI, and PUE (and, no, since this is not a one-man interpretation of Robin Williams' efforts in Good Morning, Vietnam! you can rest assured that I didn't make up any of those terms). You will also be able to understand the challenging design strategies that drive the installation and maintenance of these complex and integrated systems, and you will also have a much more in-depth understanding of the costs that drive data center design, construction, and maintenance efforts. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Data Centers: Operations &amp; Maintenance, Upgrades, and Expansions</b>	If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.	1	Intermediate
<b>Data Centers: Planning, Siting, and Selecting</b>	Data centers are the brain and nerve centers of today's high tech environment. Email, webpages, phone calls, banking records, online purchasing, and facilities controls are just a few of the myriad items that require efficient, accurate, and secure electronic transmission and storage. The crux of this entire system is the modern data center - millions of square feet of high power and cooling density systems that process quadrillions of signals. Data Centers can cost in excess of \$1B to design and construct - and most systems rely on multiple data center locations. Properly siting and planning the data center, or data center network, is the first step in a multi-step process.	2	Intermediate
<b>Data Centers: Trends, Technologies, and Efficiencies</b>	Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.	1	Intermediate
<b>Dave Gibson's All-Star Metes &amp; Bounds Boundary Cases</b>	Arguing the legal points of a good boundary case is FUN and instructive!! This six hour online course presents interesting land boundary cases that I've enjoyed over the years. They are particularly instructive as to the proper application of boundary location principles for METES AND BOUNDS land parcels. For each case, I'll give a problem statement and then I'll suggest alternate approaches, principles, and solutions. For each, you must then solve the case according to what you think is the proper application of survey principle. I'll then give my 'best practices' solution and defend it with the reasons why I think my solution is the 'best practices'. You may or may not agree, but you'll learn from this course. HERE ARE THE INCLUDED CASES: (1) Frost's Survey, (2) Henderson et al, (3) Simple 300x100 Parcel, and (4) Stefanic et al. You can also take these as individual courses offered on RedVector.com. You should do one or the other. Take all four together in this course, or take them individually. If you love to discuss boundary location situations, then you will love this course and learn something new. You will also learn other viewpoints for your consideration. Even though the cases are tough ones, the beginner can benefit from the instruction they give as much as or more than the experienced practitioner. I hope you enjoy them!!! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	6	Intermediate
<b>DC Power in the Data Center</b>	Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today.	1	Intermediate
<b>Deconstruction and Reuse: Sustainable Construction in Reverse</b>	This interactive webcast focuses on the differences between conventional demolition and deconstruction. We will also focus on the environmental and economic rewards from taking a building apart - either wholly or partially - with the intent of salvaging (recycling or reusing) building materials. This approach varies greatly from conventional demolition which involves material removal and disposal. This course will focus on the types of building materials and their potential for reuse. Some materials have a long tradition of reuse (e.g., bricks, metal), whereas other materials are now finding a new vocation (e.g., plumbing fixtures, doors). We will also explore case study examples of both evolving deconstruction techniques and the types of materials salvaged.	2	Fundamental
<b>Design of Bicycle Facilities - Buffered Bike Lanes</b>	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle transportation networks. One of the key elements being used to improve bicycle transportation networks is the construction of buffered bike lanes. In this interactive online course, key planning and design considerations for buffered bike lanes will be reviewed. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of buffered bike lanes and that support their implementation, such as traffic separator options, mid-block crossings and intersection accommodations.	2	Advanced
<b>Design of Bicycle Facilities - Cycle Track Design</b>	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing main bicycle thoroughfare facilities, such as cycle tracks, as key elements of their transportation network. Cycle tracks can be considered as bicycle arterials or bicycle highways; this interactive online course will outline the planning and design elements needed to develop cycle tracks that support this main thoroughfare purpose. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of cycle tracks and that support their implementation, such as ADA accommodations, vehicular traffic level considerations, and the design of geometric elements to accommodate on-street parking, transit facilities and left-turn movements from the cycle track.	2	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Design of Bicycle Facilities - Multi-Use Paths</b>	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation and a 30% increase in pedestrians. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle and pedestrian transportation networks. One of the key elements being used is that of multi-use paths. Engineers, Architects, Contractors and other professionals from the A/E industry will gain core knowledge under this course for the planning and design of multi-use paths. This interactive online course will cover key guidelines from AASHTO, FHWA and NACTO in the development of multi-use paths, with a special emphasis in ADA elements, geometric requirements such as horizontal and vertical curvature design, and the adequate development of multi-use path crossings and roadway mid-block crossings.	2	Advanced
<b>Design of Buildings for Coastal Flooding</b>	This course provides information important to the design of foundations used in coastal areas. The design methodology comes from FEMA's Coastal Construction Manual (CCM) and has been developed from studying failures after numerous coastal storms. Flood loads are developed using both ASCE 7 and the CCM and applied to pile supported structures. Other flood effects such as erosion and scour are covered. Pile design is discussed as well as bracing methods used in pile systems. An example of how to calculate flood loads and how to apply them to the foundation at a coastal location is included to help provide context on the method and magnitude of the loads.	2	Advanced
<b>Design of Buildings Using Insulated Concrete Forms (ICF)</b>	This course is intended to present a comparison of engineering analysis approaches to the design of building structures for Insulated Concrete Forms. The course covers the Prescriptive Method (developed by HUD through PCA) and the two appropriate sections of the 2011 ACI code for walls. A simple, 2-story house with a basement is used as an example to demonstrate the application of both of these methods for a 6 inch thick waffle-slab and a flat panel ICF wall.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Analysis and Design of T Beams and Doubly Reinforced Beams</b>	In this course you will learn ways to analyze T beams and utilize doubly reinforced beams. This course will demonstrate how to size and find required quantity of steel based on the consideration of strength and serviceability requirements. This course shows how to utilize doubly reinforced beams to account for bending moments. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Bond, Development Lengths, and Splices</b>	In this course we will cover how to properly bond beams for a variety of purposes by calculating the development lengths for the reinforcement bars, which will help to provide extra strength to the beams. Factors affecting your developmental length calculation will also be covered, such as critical sections of a beam. We will also cover how splices can help or hinder your project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Design of Rectangular Beams and One-Way Slabs</b>	In this course you will receive comprehensive information on rectangular beams and one-way slabs. We will give you load factors, considerations necessary for beam design, limitations of lateral bracing and deep beams, and examples of beam design. We'll also cover bundled bars, one-way slabs, and reinforcement of cantilever and continuous beams. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Design of Short Columns Subject to Axial Load and Bending</b>	The purpose of this course is to cover some of the aspects of a column that will influence your selection, design, and/or analysis of a column(s) to be used in the support of a structure. This course will cover such topics as: Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Flexural Analysis of Beams</b>	In this course you will learn the three progressive stages that occur before a beam collapses and how to calculate the stress of concrete beams at the different stages. In this course, we will cover formulas you can use to calculate a beam's stress, both in concrete and steel, and when those formulas should be used. We will be utilizing examples to enhance your understanding of each formula's use and what is occurring at each stage. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction</b>	This course will introduce you to concrete and reinforced concrete. You will get definitions, advantages and disadvantages, and descriptions of the different types of concrete. We'll examine all the aspects of concrete - its composition, compatibility with steel, weights and strengths, and load types. You will learn to analyze your concrete needs and to identify the solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction to Columns</b>	You need to be familiar with many types of columns in order to design the safest, most economical building that makes the best use of interior space. This course gives you the types of columns, information on column failure, and the limitations of the ACI Code. You also get a discussion of economical column design and formulas you can use to design for axially loaded columns.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Serviceability</b>	Serviceability addresses the issue of performance. In this course you we will examine deflections and cracks. We'll give you background material on the importance, control, and calculation of deflections. You'll be instructed in effective moments of inertia, long term deflections, simple-beam deflections, and continuous-beam deflections. We'll also review types of cracks, control of flexural cracks, ACI code, provisions concerning cracks, and miscellaneous cracks. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Design of Reinforced Concrete Using the ACI Code: Shear and Diagonal Tension</b>	The objective of today's reinforced concrete designer is to produce ductile members that provide warning of impending failure. To achieve this goal, the code provides design shear values that have larger safety factors against shear failures than do those provided for bending failures. The failures of reinforced concrete beams in shear are quite different from their failures in bending. Shear failures occur suddenly with little or no advance warning. Therefore, beams are designed to fail in bending under loads that are appreciably smaller than those that would cause shear failures. This course discusses shear and diagonal tension on reinforced concrete and how different types of reinforcement can help mitigate the damage caused by cracking. Definitions related to concrete construction and reinforcement will be provided, as well as shear design example problems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Slender Columns</b>	When a column bends or deflects laterally an amount, its axial load will cause an increased column moment equal to P. This moment will be superimposed onto any moments already in the column. Should this P-moment be of such magnitude as to reduce the axial load capacity of the column significantly, the column will be referred to as a slender column. In this course we will examine the characteristics of slender columns and how the ACI code applies to these columns, paying close attention to the calculations and procedures used in determining K factors and computing moment magnifiers. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Strength Analysis of Beams</b>	This course takes a look at strength analysis of beams according to the ACI code. You will be introduced to two different design methods, working-stress design and strength design; with the focus of the course pertaining to strength design. We will take a look at the advantages of strength design and why it has moved to the preferred method. We will examine two methods used for calculating structural safety of a reinforced concrete structure. We will take a look at varying expressions associated with stress load and beam integrity. We will explain the different ACI codes and how they relate to beam strength. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Two-Way Slabs, Equivalent Frame Method</b>	In this course, we will illustrate how moment distribution can be applied to the analysis of structures consisting of non-prismatic members. We will also explain the difference between the direct design method and the equivalent frame method, and list the properties of slab beams and columns. An example problem using the equivalent frame method will be demonstrated, as well as explanation of the benefits of computer analysis. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Steel Elements for Second Order Effects</b>	Many steel designers do not incorporate the requirements of Chapter C Design for Stability (AISC 14th Edition) into their design of steel elements. Chapter C states that stability shall be provided for the structure as a whole and for each of its elements and that the effects of second order effects (also called P-delta effects) shall be considered. It also states that the approximate methods defined in Appendix 8 is permitted as an alternative to a rigorous analysis. This course will define these second order effects and their parameters, calculate their values and compare designs with and without these effects. Simple guidelines will be developed for their use.	1	Intermediate
<b>Design of Utility Infrastructure</b>	Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities.	2	Fundamental
<b>Design of Water Efficient Buildings</b>	This interactive webcast will discuss approaches for conserving water including water efficient building technologies, simple systems for recycling and reusing water on site, and how to drastically decrease the demands on shared supplies. This course will also discuss the many great environmental and economic benefits to water efficient buildings. We will conclude with details on LEED (Leadership in Energy and Environmental Design) criteria for water efficiency, plus additional case study examples on innovations in wastewater treatment and reuse	2	Fundamental
<b>Design Traffic and Traffic Impact Study for the Non-traffic Engineer</b>	If you work with traffic engineers or transportation planners as part of a project team, then this course is for you! Learn what inputs the traffic professionals need to produce traffic studies, and what kinds of data they can provide on a project, all while learning how to coordinate projects more smoothly. This course will explain land use, access, and 'build out year' information that a traffic engineer needs in order to do a site impact study for a new development - and what the effects will be if any of that information changes during the study. It also explains how design traffic for roadway projects is developed, and how transportation projects are created, prioritized and scheduled as part of a Long Range Transportation Plan - LRTP.	2	Intermediate
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Designing and Specifying Pervious Concrete</b>	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
<b>Designing Buildings for Tornadoes</b>	This course will present the most up to date ideas about designing buildings for the devastating effects of tornadoes. The focus will be on how to improve building performance and reduce damage to buildings impacted by tornadoes. The presentation will cover tornado research topics, design methods using ASCE 7-10 with needed modifications to account for tornado wind structures, and some examples on how to apply these concepts to building design.	1	Intermediate
<b>Designing for Flood Loads Using ASCE</b>	This course will provide technical information important to flood design for all types of buildings and all types of flood conditions. We will cover the minimum design and construction standards required by regulations. You will learn the current design methodologies for foundation issues for both riverine and coastal buildings. This course will cover the limitations of prescriptive solutions for flood-design problems. Flood load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures and ASCE 24 Flood Resistant Design and Construction will be discussed. And you will learn how to retrofit existing buildings with flood-resistant features. As we learn more about this devastating hazard and communities strive to be more sustainable, flood provisions in state and federal regulations are changing, as well as design concepts and methodologies, making it essential for engineers to remain engaged with these changing methodologies.	2	Advanced
<b>Designing Foundation Repairs</b>	What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair.	2	Intermediate
<b>Designing Permanent Erosion and Sediment Control Systems</b>	Development of land, whether it is for a new highway or a new office building, requires the re-contouring of terrain. And as such, requires a redistribution of drainage patterns. This change in the land creates the potential for long term erosion through storm events that occur during the life of the project. To prevent long term erosion, permanent erosion and sediment control system need to be developed as an integral part of the projects' designs. The primary goals of this interactive online course are to familiarize Engineers, Architects and Contractors with the design and application of different Best Management Practices (or BMPs for short) in the design of Permanent Erosion and Sediment Control.	2	Intermediate
<b>Designing PEX Plumbing Systems to Optimize Performance and Efficiency</b>	What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance.	1	Fundamental
<b>Designing Temporary Erosion and Sediment Control Systems</b>	Earthwork activities during construction disrupt natural and man-made ground coverage, creating the potential for erosion hazards and the contamination of natural resources. This interactive online course teaches you about best management practices for temporary erosion and sediment control. You will also learn about common regulations and requirements set in place to minimize significant impact upon the health, safety and welfare of the community.	3	Intermediate
<b>Designing Using LRFD Principles</b>	What is LRFD? LRFD (Load and Resistance Factor Design) principles are used in structural engineering applications so structural reliability is more consistent across various materials and loading conditions. This concept becomes particularly important in performance-based design scenarios when the structural engineering solutions are required to address how the structure is used and expected to perform - and not prescriptive building codes. This interactive, online course will review load factors, resistance factors, and reliability theory. We will also discuss the four material types (wood, steel, concrete, and masonry), looking at how each of these material standards deal with LRFD design.	2	Intermediate
<b>Designing with Structural Composite Lumber</b>	What is structural composite lumber? Is it reliable enough to build with in your area? The building industry is constantly developing new materials. Some of this innovation has occurred in the design of timber construction materials. Many of the new products have higher load carrying ability and improved serviceability when compared to their sawn lumber equivalents. In addition, these material are often more sustainable. This interactive online course will focus on innovations in Structural Composite Lumber (SCL). As a designer, it is critical to understand these materials in order to safely and cost effectively design with them.	1	Fundamental
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced



## Engineering (Continued)

Title	Description	Hours	Level
<b>Don Wilson's Court Decisions: Block 1 - Surveying Definitions; Overlapping Titles &amp; Descriptions</b>	Court Decisions- Block 1: Surveying - Definitions; Overlapping Titles & Descriptions This 2-hour online interactive course presents four court decisions covering basic issues of surveying including defining what a survey is and dealing with overlapping descriptions. Principles of retracement, original survey, senior-junior conveyancing, apportionment and historical title analysis are discussed and illustrated. Court Cases included are: Kerr v. Fee, 161 N.W. 545, 179 Iowa 545 (1917) Rivers v. Lozeau, 539 So.2d 1147 (Florida, 1989) Hughes v. Yates, 228 Ark. 860 (1958) Parkman v. Ludlum, 69 So.2d 434 (Alabama, 1953) There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 2 - Description Interpretation</b>	Court Decisions- Block 2: Description Interpretation This 2-hour interactive online course presents five court decisions covering principles of interpretation and construction to be applied to land descriptions. The significance of original land descriptions, ambiguity, references, meanings of words and phrases, and official plats are covered. Some of the court cases included are Harvey v. Inhabitants of Sandwich, 152 N.E. 625, 256 Mass. 379 (1926), Wilson v. DeGenaro, 415 A.2d 1334 (Conn., 1979), Perry v. Buswell, 113 Me. 399 (Maine, 1915), Cragin v. Powell, 128 U.S. 691 (Louisiana, 1888) and Peacher v. Strauss, 47 Miss. 353 (1872). There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 3 - Rules of Construction for Interpreting Descriptions</b>	This 2-hour interactive online course deals with some of the basic rules of construction for interpreting land descriptions and resolving ambiguities therein. The intent of the parties is the primary requirement, which must be determined from the language of the description viewed in light of the surrounding circumstances at the time. This course includes the following decisions: Case 1 City of North Mankato v. Carlstrom; 212 Minn. 32 (1942) Case 2 People v. Call; 223 N.Y. Supp. 257 (1927) Case 3 Smith v. Smith; 622 A.2d 642 (Del., 1993) Case 4 Smart v. Huckins; 82 N.H. 342 (1926) There is a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 4 - Surveying Procedures</b>	Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose, and what are their limitations and applications. This 2-hour online course presents four court decisions dealing with basic surveying procedures for land parcels. Topics discussed are property line location, evidence, lost & obliterated corners, legal principles and the resolution of particular problems. The four cases covered are: Myrick v. Peet, 180 P. 574 (Mont., 1919) Hagerman v. Thompson, 235 P.2d 750 (Wyo., 1951) Seaman v. Hodgboom and others, 21 Barb. 398 (New York, 1855) U.S. v. Doyle, 468 F.2d 633 (Colo., 1972) Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 5 - Boundary Retracement 1</b>	Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose, and what are their limitations and applications. This 3-hour interactive online course is the first of three parts discussing the basics of boundary retracement. Discussion centers around following ancient boundaries, stressing the use, and correction of magnetic bearings. Seven court cases are presented: Beckley v. Bryan and Ransdale, 1 Ky (Ky. Dec.) 91 (1801) Bryan, &c. v. Beckley, 16 Ky (Litt Sel Cas) 91 (1809) Finnie v. Clay, 5 Ky (2 Bibb) 351 (1811) Vance v. Marshall, 6 Ky (3 Bibb) 148 (1813) M'Nairy v. Hightour, 2 Overton 302 (Tenn., 1814) Bradford v. Pitts, 2 Mills. Const. Rep. 115 (South Carolina, 1818) Johnson v. M'Millan, 1 Strode Law 143 (S. C., 1846) There is a test at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Don Wilson's Court Decisions: Block 6 - Boundary Retracement 2</b>	This 3-hour interactive online course is the second of three parts and includes seven significant cases in the area of boundary retracement. Basic procedures are outlined by the courts in these decisions. This course includes some of the most complete and well-founded decisions outlining rules for boundary retracement and the reasons behind them. The seven court cases presented are: Cherry v. Slade's Administrator, 3 Murph (N.C.) 82 (1819) Riley, Administratrix, &c v. Griffin, et al, 16 Ga. 141 (1854) Stewart v. Carleton, 31 Mich. 270 (1875) Diehl v. Zanger, 39 Mich. 601 (1878) Wells v. Lagorio et al., 112 Va. 522 (1911) Taylor v. Higgins Oil & Fuel Co., Tex.Civ.App., 2 S.W.2d 288 (1928) Greer v. Hayes, 216 N.C. 396 (1939) Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Don Wilson's Court Decisions: Block 7 - Boundary Retracement 3</b>	Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose and their limitations and applications. This interactive online course is the third installment of the three-part retracement cases. It covers basic principles of boundary retracement along with the use of several types of evidence, such as survey data and original field notes. This course presents four relatively recent, later cases on boundary retracement. Several stress the importance of, and the reasoning behind, strict following of original boundaries. The cases covered are: Case 1 Stafford v. King, 30 Tex. 257 (1867) Case 2 Hart v. Gries, 155 S.W.2d 997 (Texas, 1941) Case 3 Sellman v. Schaaf, 269 N.E.2d 60 (Ohio, 1971) Case 4 U.S. v. Champion Papers, 361 F. Supp. 141 (D.C. Texas, 1973)	3	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Downcycle, Upcycle, Precycle, and Recycle: Waste Prevention and Reuse</b>	This interactive webcast explores the concepts of downcycling, upcycling, precycling, and recycling. In an era of resource conservation, the idea of reuse is paramount to meeting sustainability goals. We will introduce green-minded professionals to the concepts of downcycling (reclaiming), upcycling (refashioning), precycling (reducing waste), and recycling (reuse). We will focus on the environmental, economic, and social benefits of these four types of waste prevention. In addition, we will look at the relationship between waste reuse and technological advancement. Lastly, we will explore case studies of cutting edge waste reuse and reduction.	2	Fundamental
<b>Drinking Water Quality - Monitoring &amp; Security</b>	It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties. In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities.	1	Fundamental
<b>Drinking Water Quality - Water Treatment Technology</b>	Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system.	1	Fundamental
<b>Driven Piles: Introduction to Static Analysis Methods</b>	Driven piles are a dependable and cost effective deep foundation solution to maintain the integrity of structures. Produced as long columns of steel, timber, or concrete, they provide additional support to structures on land and over water, especially during natural disasters such as floods and hurricanes. Testing of installed piles can determine the load carrying capabilities of the pile, ensuring the strength and stability of the foundation before construction begins. This 1-hour interactive online course is the third of a series of courses on driven piles. This course covers an introduction to static analysis methods, including basics of static analysis, events during and after pile driving, load transfer, effective overburden pressure, selection of design soil strength parameters and factors of safety. Other courses cover design of single piles and design of pile groups. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Driven Piles: Pile Type and Selection</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. This 2-hour interactive online course covers the many different types of piles available and explains the appropriate conditions for each type of pile. There is also a section covering the different types of degradation and how each pile substance might respond to these difficult environmental circumstances. The information is provided to help designers choose the best pile type for any given project. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driven Piles: Static Analysis - Pile Groups</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base which can be used in different types of foundations. This 3-hour online course is the fifth course in a series on pile design. This course reviews static analysis of driven pile groups, including bearing capacity analysis of pile groups in cohesionless soils, cohesive soils and layered soils. The course material covers analysis of uplift capacity and lateral capacity, special design considerations such as downdrag, lateral squeeze of foundation soil, bearing capacity of piles in soils subject to scour, and soil and pile heave. This course also addresses additional design considerations including time effects on pile capacity, effects of construction techniques, plugging of open pile sections, and pile driveability. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Static Analysis - Single Piles</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base that can be used in different types of foundations. This 3-hour interactive online course is the fourth course in a series on pile design, covering static analysis of single driven piles. This course reviews bearing capacity analysis of single piles in cohesionless soils, in cohesive soils, in layered soils and on rock. Analysis of uplift capacity and lateral capacity is also reviewed. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles, including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Subsurface Exploration and Testing</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. Driven piles easily adapt to variable site conditions to achieve uniform minimum capacity with high reliability, thus eliminating uncertainty due to site variability. This 2-hour interactive online course covers the subjects of subsurface exploration, in-situ testing and laboratory testing. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
Ductile Iron Pipe	Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Easements: Part 1, Basic Elements	This 3- hour interactive online course is Part 1 of a three-part series covering easements and reversion rights. This course deals with the basic elements of easements and rights in land, particularly those interest which are less than absolute, or fee simple, ownership. This course includes a multiple-choice quiz at the end of each section. Part 2 deals with rights-of-way, and discusses several types. Part 3 covers reversion rights that occur when an easement is terminated. In order to have a full understanding of the existence of easements and their resulting reversion rights, the three parts of the course should be taken in sequence. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
Easements: Part 2, Roads & Highways	This 2-hour online course contains information on the creation, alteration and termination of public highways and other types of roads. This is Part 2 of a three-part course concerning Easements & Reversion Rights. As Part 1 contains introductory information, including terminology, it is important to complete Part 1 before beginning Part 2. Part 3 contains the action of reversion as a result of easement termination and focuses on roads and streets. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Easements: Part 3, Reversion Rights	This 3-hour online course contains the elements of reversion and the results when reversion takes place. It also includes diagrams of the methods for the division of vacated streets. This is Part 3 of a three-part course series offered on RedVector.com concerning Easements & Reversion Rights. In order to have a full understanding of the existence of easements and their resulting reversion rights, the three parts of the course should be completed in sequence. Part I deals with the basic elements of easements and rights in land. Part II deals with several types of rights-of way. Part III covers reversion rights that occur when an easement is terminated. This course includes a multiple-choice quiz at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
Effective Groundwater Supply Management	Effective Groundwater Supply Management is essential if groundwater resources are to remain viable for the foreseeable future. Groundwater Management is a rapidly evolving discipline that is incorporating ever more factors into the evaluation of principles that will ensure that no harmful effects arise from the utilization of this resource while ensuring that all potential resources that can be maintained are used to satisfy an ever-increasing demand. This interactive online course will present a history of Groundwater Management from its beginnings in the middle of the last century through the present day. Current parameters and environmental factors of concern will be outlined.	1	Advanced
Electric Motors	Electric motors are used in all facets of daily life from electric generators, refrigerators, air conditioners, to the electric fan in computers. This interactive online course teaches you about electric induction motors. It covers how a motor works, the types of electric motors available, and how to apply an electric induction motor. This course looks at the relationship between motor speed, slip, and torque, and covers how to select a motor with the correct parameters for a particular load. Finally, all of the basic data on a motor nameplate is reviewed and explained.	1	Fundamental
Electric Power Substations	This webcast covers basic information regarding electric power substations and the distribution of electric power, including components of power substations, individual equipment components, and electric power distribution systems. General information related to operational aspects of substations and distributing electric power is included.	1	Fundamental
Electrical Fire Alarm Systems	This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification.	1	Fundamental
Electrical Installations 1: Electrical Laws, Components and Circuits	The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time.	1	Fundamental
Energy Conversion Analysis (RV-10839)	Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid.	4	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Energy Conversion Ideal vs Real Operation Analysis</b>	How well do you know the basic power cycles (Brayton Cycle, Otto Cycle and Diesel Cycle)? In this interactive online course we will cover the 3 cycles as well as power cycle components/processes (compression, combustion and expansion) and compressible flow components (nozzle, diffuser and thrust). We'll present power cycles, power cycle components/processes and compressible flow components analysis with air used as the working fluid. For each power cycle, you'll get the thermal efficiency derivation presented with a simple mathematical approach. Also, for each power cycle, a T - s diagram and cycle major performance trends (thermal efficiency, specific power output and power output) are plotted in a few figures as a function of compression ratio, turbine inlet temperature and/or final combustion temperature, working fluid mass flow rate and both isentropic compression and expansion efficiency. We won't deal with costs (capital, operational or maintenance).	4	Advanced
<b>Energy From Waste</b>	How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel.	1	Fundamental
<b>Energy Modeling Outcomes - Design with Confidence</b>	What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs.	1	Intermediate
<b>Engineering Economic Analysis</b>	This five-hour online course is a review of engineering economy analysis concepts. The course reviews the basic concepts of economic analysis, including the time value of money, cash flow diagrams, and present value methods. The most common analysis factors that are used in economic analysis are explored. Both discrete compounding and continuous compounding factors are discussed. Methods for converting annual values to present values, future values to present values, and future values to annual values are shown, as well as their complement equations. Several different analysis methods are reviewed, including present worth, annual cost, capitalized annual cost, payback, and multiple alternative analysis. The effects of taxes, including depreciation effects, are explained and shown in examples.	5	Advanced
<b>Essential Lighting: The Language, Metrics &amp; Process of Lighting Design</b>	This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad. The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment. The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective. Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics. There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Essentials of Industrial Wastewater Treatment</b>	High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand. This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly.	1	Fundamental
<b>Essentials of Intelligent Transportation Systems</b>	What is an Intelligent Transportation System? Intelligent Transportation Systems (ITS) apply a variety of technologies to monitor, evaluate, and manage transportation systems to enhance efficiency and safety. This interactive online course provides an overview and history of ITS from early initiatives through the evolution of technology, systems engineering, and institutional structures. We will also describe the role of ITS in changing travel and commuter patterns and travel demand management.	1	Fundamental
<b>Essentials of Lean Manufacturing</b>	What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to think Lean and apply Lean methods and tools to improve the quality and efficiency of your company.	1	Intermediate
<b>Essentials of Quality Concrete</b>	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
<b>Essentials of Six Sigma</b>	Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, its management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently.	0.75	Intermediate
<b>Essentials of Smart City Applications</b>	What is a smart city? A smart city is an urban development vision to integrate multiple information and communication technologies and Internet of things (IoT) solutions in a secure fashion to manage a city's assets. This interactive, online course will list possible stakeholders of a smart city, as well as how a smart city policy is developed. Smart city technologies will also be discussed.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
Essentials of the Connected Vehicle	What is a connected vehicle? Connected vehicles offer a fundamental change in systems management and ITS infrastructure by focusing on vehicle-to-vehicle and vehicle-to-roadway communication. This interactive, online course discusses the current and emerging technology and the institutional, policy, and funding challenges of connected vehicle applications.	1	Fundamental
Ethical Decision Making (RV-10705AW)	Professionals associated with site, building, or neighborhood planning, design, and development have a unique charge to make ethical decisions with the welfare of both the environment and citizens in mind. The goal of this course is to expose professionals to some of the most common ethical considerations within planning, design, and construction professions and give the opportunity to learn how to create a built environment that improves the quality of life of a community while adhering to simple strategies to facilitate ethical practice in the work place.	2	Fundamental
Ethical Decision Making for Design and Construction Professionals	Designers, Planners, Architects, Landscape Architects, and Engineers all need to know about and adhere to established codes of ethics. Then you will protect the public and the environment now as well as in the future. This webcast gives you the history of the events that led to our current attitudes regarding ethical decision making. You will get specific examples of the consequences for making unwise decisions. You'll also receive instruction in the ethical considerations involved in making good, safe, ethical decisions. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Intermediate
Ethical Decision Making for Engineers #1	In this course we examine the NSPE Code of Ethics. We review cases ruled upon by the NSPE Board of Ethical Review, which will be key to helping you determine how you should act when faced with ethical decisions. We explore each of the 6 fundamental canons.	2	Fundamental
Ethical Decision Making for Engineers #2	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this second course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how the Code specifically applies in each case. We will look into a case involving the use of unlicensed software to create work products. We will review the concept of conflict of interest. Finally, we will discuss cases involving licensure and practicing in different states.	1	Fundamental
Ethical Decision Making for Engineers #3	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this third course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of using existing work for different clients and disclosing required information. We will look at cases involving conflict of interest and the engineer's responsibilities for handling incomplete specifications. Finally, we will look at the ethical responsibility to notify authorities and owners of potentially dangerous conditions.	1	Fundamental
Ethical Decision Making for Engineers #4	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fourth course, we will continue the discussion of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into cases involving conflicts of interest and the appearance of conflicts of interest. We will also look at a case involving responsibilities of the engineer in situations that may endanger public safety. Finally, we will look at the responsibilities of an engineer when reviewing another engineer's work.	1	Fundamental
Ethical Decision Making for Engineers #5	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fifth course, we will continue the direction of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of participating in political fundraisers. We will also look at a case involving the ethics in employee agreements. We will discuss the implications of protecting wildlife. Finally, we will look the rights of engineers when speaking out about matters of public policy.	1	Fundamental
Ethics for Land Surveyors: Abiding By the Rules & Regulations for Surveying	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the second canon - abiding by the rules & regulations for surveying. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Ethics for Land Surveyors: Client Conflicts, Advertising &amp; Professional Integrity</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the fifth, sixth, and seventh canons - client conflicts, advertising, and professional integrity. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Land Surveyors: Decision-Making in Everyday Practice</b>	Examining the ethics of an individual's actions, given a theoretical or teaching situation, is a standard method of appraising and judging professional practices. Many State Boards of Registration have promulgated either a Code of Ethics or a Creed and Canons with the intention of setting the bar for professional ethics. These guides are based on moral assumptions considered essential to our culture, and are the standards by which professionals are expected to make decisions, behave and act. This 1-hour interactive online course examines seven situations that surveyors may commonly face, and discusses correct actions in the context of what the National Society of Professional Surveyors (NSPS) calls its Surveyor's Creed and Canons. This course reviews the basic ethics and conduct expected of surveyors in professional practice. In the context of the Surveyor's Creed and Canons published by the National Society of Professional Surveyors (NSPS), you will learn the parameters of ethical decision-making by examining a series of challenges that surveyors typically encounter on a regular basis.	1	Intermediate
<b>Ethics for Land Surveyors: Refraining From Conduct Detrimental to the Public</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the first canon - refraining from conduct that is detrimental to the public. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Land Surveyors: Working Outside Your Area of Expertise and Avoiding Conflicts of Interest</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the third and fourth canons - working outside your area of expertise and avoiding conflicts of interest. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Professionals</b>	What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently.	1	Fundamental
<b>Ethics for the Practicing Engineer - An Introduction</b>	This course is designed to satisfy state board requirements for continuing education in ethics. This will be an introduction to professional ethics, contrasting common morality to professional ethics, and will present analytical tools to identify and classify ethical dilemmas potentially faced by practicing engineers.	1	Fundamental
<b>Ethics for the Practicing Engineer - Managing Risks Imposed on the Public</b>	All engineering designs and all operations of engineered systems expose the public to some risk. Engineers are ethically obligated to protect the public from unacceptable levels of risk, which raises the questions: How is risk defined and quantified? What levels of risk are acceptable? In this interactive online course, we will discuss ways to evaluate risks imposed on the public by engineers. We will also discuss ways to determine which risks are acceptable and which are unacceptable.	1	Intermediate
<b>Ethics for the Practicing Engineer - Organizational Issues</b>	Organizational issues can affect the decisions made by engineers every day. This interactive online course will focus on issues facing engineers working in large organizations. Case studies of organization-induced problems (such as the two space shuttle failures, the Macondo blowout, the GM ignition switch case) will be used to help participants recognize when organizational problems might cause ethical issues for engineers.	1	Intermediate
<b>Ethics: Shades of Green</b>	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
<b>Existing Building Commissioning: Implementing Retrocommissioning on Your Project</b>	What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process.	1	Intermediate
<b>Explosive and Flammable Chemicals</b>	A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fire Essentials and Fire Science</b>	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
<b>Fire Safety Design: Egress &amp; Extinguishing Systems</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 4-hour interactive online course focuses on two important life safety protection features- means of egress and extinguishing systems- in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Fire! Designing Means of Escape</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features—adequate means of egress—in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Fixing A Boundary Line: Boundary Control &amp; Legal Principles</b>	Fixing A Boundary Line reviews boundary control and legal principles for professional land surveyors. The course addresses and enumerates many of the legal principles that control the boundary location of real property. Land surveyors play a key role in interpreting and implementing these often confusing principles. This course is associated with another RedVector course by the same author, Boundary Disputes Between Adjoining Owners. Together the two courses provide an excellent overview of some of the most common boundary problems that professionals encounter, with insights into practical solutions. With an emphasis on adverse possession, the course examines legal principles, including prescriptive easements, estoppel, acquiescence, practical location and unwritten agreements. It further explores conditional boundary lines and parol agreements, which are part of unwritten agreements. From these principles the course develops protocols for the professional to follow when encountering difficult situations. It also lists key references to use when a good boundary line solution is seemingly out of reach. The course emphasis is on the surveyor as a professional, as one who uses well-established principles of law to knowledgeably resolve boundary disputes and unexpected challenges.	1	Intermediate
<b>Floodproofing</b>	Flooding has caused damage throughout the United States and all areas of the World, ever since man decided to occupy areas adjacent to rivers and lakes. Recent history has shown an alarming increase in the amount of damage being experienced, in spite of the many efforts on the part of various levels of government to guide people out of the floodplains. This 5-hour interactive online course focuses on the floodproofing and/or retrofitting of buildings to keep them safe from flood damage, or at least, reduce their exposure to flood damage. There are several methods that can be employed to reduce flood damages. They include relocation, elevation, dry floodproofing, wet floodproofing, permanent barriers, emergency barriers, sewer backup protection and utilities protection. Very often, a combination of measures is the best choice to provide the most effective and cost-beneficial protection. This course covers all of the above methods of floodproofing. In addition to the types of floodproofing measures available, this course covers the selection issues that must be considered before selecting a measure to employ. These issues include: floodway implications; regulatory agency requirements at the federal, state and local levels, choosing the flood protection elevation; the building uses; human intervention; and the owner's preferences. Design requirements are presented for all of the floodproofing approaches, as well as discussions of required coordination, flood and geologic data implications and permit requirements. Finally, the course discusses the bidding process, contractor selection, and the construction phase of the project through final project approval. There is a test included at the end of each scenario of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Intermediate
<b>Florida - Wind Design and Wind Mitigation Requirements</b>	The Sunshine State is known for its beautiful beaches and tropical weather. Surrounded by warm ocean waters, it is this location that makes it especially vulnerable to severe tropical storms. Winds from these storms can cause severe destruction; therefore, the State of Florida has enacted building regulations to help minimize the damages caused by severe storms. This interactive online course will cover the latest wind design and wind mitigation requirements from the Florida Building Code (based on ASCE 7-10, the 2010 version of the ASCE standard). In this course, we will cover what is applicable in this building code, types of issues covered in the wind design arena, and changes to the wind speed maps. Other issues covered include exposure of a building site, opening protection and enclosure classifications for how to protect a building in wind regions. The code has an alternate all heights method, which will be covered briefly. We will also talk about roof and wall components, and the special requirements for those components in high velocity hurricane zones, or more specifically, south Florida.	1	Fundamental
<b>Florida Engineering Laws and Rules</b>	It is important for engineers to avoid illegal activity or immoral conduct by familiarizing themselves with Florida's laws and rules. The purpose of this interactive online course is to provide engineers with the bare essentials of laws pertaining to their field in the state of Florida. The rules presented here are not intended to serve as a substitute for actual statutes and laws but rather as introductions and summaries of the law per the current Florida Statutes.	1	Intermediate
<b>Florida: Building Inspector's Laws &amp; Rules</b>	This informative course thoroughly explores the state of Florida's rules and regulations for building code administrators, building code inspectors and plans examiners. Requirements from Chapter 61G19 of the Florida Building Code Administrators and Inspectors Board are presented as well as a look at Chapter 468 from the Florida Statutes which discusses similar state regulations. In addition, FS Chapter 553 has been added. Chapter 553, Florida Statutes (F.S.), Part IV, is known as the Florida Building Codes Act. This statute addresses building construction standards and provides for a unified Florida Building Code. The information provided will keep any interested building professional informed on the latest licensing, penalty, certification, and education specifications for the state of Florida.	2	Fundamental
<b>Florida: Laws for Surveyors [V.09]</b>	The State of Florida has passed several laws pertaining to surveyors and mappers, which must be followed in their work. This interactive online course discusses these laws and recent changes to these standards, and is intended to provide one of the two required portions of the continuing education requirements (CEU's) for Professional Land Surveyors and Mappers. This course discusses Chapter 177: Land Boundaries, Chapter 472: Land Surveying and Mapping, FL Administrative Code 5J-17.001 - 5J-17.048, Chapter 161: Parts I - IV, and Chapter 455.01 - 455.32: Business and Professional Regulation.	6	Intermediate
<b>Florida: MTS for Surveyors [V.08]</b>	The State of Florida has enacted laws for professional surveyors and mappers that illustrate the minimum requirements for this occupation. This interactive online course discusses the minimum technical standards for surveyors, Florida Administrative Code Chapter 5J-17.050 - 5J-17.052. Professional surveyors and mappers shall abide by these minimum standards, striving to exceed these minimum guidelines when performing their work, and checking their work against these standards to ensure these laws are followed correctly.	6	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
<b>Formation Evaluation by Wireline Logging</b>	This course is designed to convey the basics of formation evaluation by wireline logging technique to the construction professionals and learners. Wireline logging operations has a sensitive and critical importance as it deals with complex electronic and mechanical tools, radioactive and nuclear sources. For a new person in this field, it is essential to have sound theoretical knowledge about formation evaluation by wireline logging techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and tools, he/she may not be recommended for any field work. This course is important to impart basic knowledge of wireline logging to assist drilling operation and formation evaluation; it also covers basic earth formation parameters and calculations.	1	Fundamental
<b>Fracking: Environmental Consequences</b>	Hydraulic fracturing is done with surprising precision and with an eye on the environment, yet it is interesting how the public reacts to the practice in relation to other techniques used throughout the world. Valid points are made on both fronts. The major concern against fracking resides in the overall health and well-being of people close to a well site, as well as the land, water, and air that might be adversely affected. With proper examination and logic, this course was developed to provide insight and reason in a practice fueled by profit for some and by civil concern for others. We will explore the history, public and media perception, and environmental and economic impacts. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Business Contingency Planning</b>	Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Combustion Basics</b>	Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment. It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: People</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning</b>	Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly to many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Supply System Issues</b>	Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks</b>	Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Natural Gas Piping Basics</b>	Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks</b>	Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - What You Don't Know Can Kill You!</b>	Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fundamentals of Asphalt Pavement Design</b>	This training presents the fundamentals of asphalt pavement design. This course will introduce asphalt pavement systems, as well as asphalt pavement materials and their properties. The characteristics of asphalt concrete are presented, followed by description of the properties of asphalt pavements. A review of current asphalt concrete mix design methods is presented. The elements of the structural design of asphalt pavements will be discussed in detail. This includes the AASHTO method for determining layer thicknesses. This course will enable pavement engineers, materials engineers as well as materials technicians to gain a better understanding of the fundamentals of the asphalt pavement design process and analysis. Examples and sample calculations are included throughout this course.	2	Fundamental
<b>Fundamentals of Petroleum Engineering</b>	This course is designed to convey the basics of the oil and gas industry to the Construction Professional. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature, and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about oil and gas operations before getting started.	2	Intermediate
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Generating Electricity</b>	This course is an introduction to the basics of generating electricity and covers the primary types of generation used today. The main pieces of equipment used in electricity generation are covered, as well as how generation is managed to meet demand from customers.	1	Fundamental
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Datum Selection and Interpretation</b>	When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Form and Size Tolerances</b>	Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Introduction</b>	GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Orientation Tolerances</b>	In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T.	0.25	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Position Tolerances</b>	GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Profile and Runout Tolerances</b>	Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements.	0.25	Intermediate
<b>Geothermal Heat Pumps</b>	This 2-hour interactive online course is an overview of geothermal heat pump systems. The course covers the basics of how a heat pump works and the specific differences between an air source heat pump and a geothermal heat pump. The benefits of using geothermal are discussed as well as the costs including installation costs, energy cost, and maintenance costs. Issues such as how to select the most appropriate antifreeze solution are discussed along with the merits of each type of loop system likely to be used in a geothermal application. There is a test included at the end of this course to assess the student's understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Going Green with BIM and GIS</b>	The goal of sustainable design is to create healthy environments through environmentally responsible planning and development. Geographic Information Systems (GIS) and Building Information Models (BIM) are both sophisticated technological tools that provide information in a more efficient and readily available manner than traditional design tools (e.g., CAD, maps). Traditional tools prove too costly, too time-consuming, and do not contain sufficient information for environmentally focused assessments and performance analysis. This interactive online course will expose planning, design, and construction professionals to the importance of using Building Information Models (BIM) and Geographic Information Systems (GIS) to work collaboratively throughout projects and to help professionals develop a thorough understanding of how these technological tools provide critical information when making sustainability decisions. GIS and BIM allow project team members to answer questions and solve problems by warehousing data that can be quickly analyzed and easily shared. Both GIS and BIM allow for providing consistency in coordinating changes for the design team and allow advanced visualization before project siting (GIS), design, or construction (BIM) has taken place.	2	Intermediate
<b>Grading and Drainage Design of Modern Roundabouts</b>	Modern roundabouts are a proven and effective safety improvement for roadway intersections. The main focus of roundabout design documentation has been in its traffic capacity and geometry. Once these features are set, the vertical design (grading and drainage) becomes the most critical portion of the design execution and the main component in determining the construction cost of roundabouts. In this interactive online course, engineers, architects, planners and contractors will learn design techniques and best practices to develop efficient roundabout grading and drainage designs.	1	Advanced
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building with Steel - Part 2: Guidelines for Builders, Trades and Inspectors</b>	Green Building is rapidly becoming mainstream. Are you ready to meet the demands? Are you recommending and using steel as a primary structural building material? Do you know steel's level of recyclability and efficiency of assembly. This interactive online course will teach you Green Building using steel, with a focus on Cold-Formed Steel Framing. You'll get what you need to know the key elements that make up steel framing; plus you'll get techniques to fit plumbing and electrical components. This is the second course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings Light Gauge Metal Components for Framing Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate
<b>Green Building with Steel - Part 3: Light Gauge Metal Components for Framing</b>	The use of steel as a primary structural building material is rapidly becoming mainstream in Green Building. It is inherently recyclable and easy to assemble. You can become an expert very quickly. This interactive online course will teach you to use steel in green building. You'll learn about structural and non-structural steel walls, steel wall components, details of assembly, steel flooring systems, and fasteners. This is the third course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings-Guidelines for Builders, Trades and Inspectors Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Green Building with Steel - Part 4: Framing With Steel Studs</b>	It makes more sense than ever to use steel as a primary structural building material. It is inherently recyclable and efficient to assemble. That makes it your best choice for sustainable building material. In no time you can be the local expert in green building with steel. This interactive online course gives you Green Building with a particular focus on framing with steel studs using Cold Formed Steel (CFS) and the various methods of building exterior and interior frames. This is the fourth course in the Green Building With Steel series. Additional courses are: Material Attributes, Manufacturing, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications It is helpful to you to take the first three courses in the Green Building With Steel series before beginning this one.	3	Intermediate
<b>Green Building with Steel - Part 5: Erecting An Engineered Red Iron Steel House</b>	Steel as a primary structural building material with its inherently recyclable nature and its efficiency of assembly is the logical and responsible choice for Green Building. You can become an expert in erecting a Red Iron steel frame house and you can learn how to earn the coveted LEED points for your project. This interactive online course provides you with the benefits of building with red iron steel as well as instructions for constructing floors, walls, and roofs. You also get information on secondary framing and finishing. Lastly you receive what you need to qualify for LEED certification. Other courses in this Green Building With Steel series provide additional information on the application and technical aspects of Steel Design and Construction. Material Attributes, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Framing With Steel Studs	4	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or underused out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series: Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Soil testing Hydrologic and hydraulic analysis Vegetation assessment, preservation, and transplantation Invasive species evaluation The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	<p>Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Working with community groups Attractive Streetscapes safe for pedestrians and vehicles Improvements that promote good health in cities Upgrades that are cost-effective and sustainable Changes that provide for increased security</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices</p>	2	Intermediate
<b>Green Infrastructure 4: Best Practices for Pavement</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Pavement lifecycle Pervious vs. impervious pavement Albedo or Reflectivity of pavement Pavement materials A materials program Material applications</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices</p> <p>It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Mechanisms to affect right-of-way construction by private utilities Technology to minimize pavement damage and degradation Upgrades to utility installation and maintenance</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices</p> <p>It is recommended that you take the Introduction course before taking the Best Practices courses. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	<p>This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Integrated stormwater management planning Water pollution prevention Construction runoff prevention Surface pretreatments for filtering runoff Catch basin inserts and water quality inlets Detention and Infiltration structures Constructed wetlands</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices</p> <p>It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 7: Best Practices for Landscape</b>	<p>This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Citywide landscape planning Maintaining and enhancing biodiversity and ecology Landscapes capable of high rates of stormwater absorption, infiltration, and treatment Tree planting for quantity, density and diversity Turfgrass reduction Plant selection Designing water-efficient landscapes Pest Management</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 8: Best Practices for Construction Practices</p> <p>It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	3	Intermediate
<b>Green Infrastructure 8: Best Practices For Construction</b>	<p>This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts</p> <p>The other courses included in the Green Building for Infrastructure series are: Green Infrastructure 1: Introduction to High Performance Guidelines Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape</p> <p>It is recommended that you take the Introduction course before taking the Best Practices courses.</p>	1	Intermediate
<b>Green Landscape Design: Reducing the Urban Heat Island Effect</b>	<p>As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live.</p>	2	Fundamental
<b>Green Landscape Design: Water Conservation in the Landscape</b>	<p>Were you aware that an efficient and effective irrigation system can reduce wasted water and save money? Current technology provides easy solutions to keep irrigation systems fine-tuned and make it easy to adjust remotely. This interactive online course will focus on the tenets of water conservation in landscaping including: appropriate plant selection, irrigation planning and design principles, efficient irrigation technologies, and others. Case studies of community conservation programs and site specific approaches are also featured.</p>	2	Fundamental
<b>Green Street Retrofit</b>	<p>How do you define a green street? This interactive, online course tells the story of street renovations implementing Low Impact Development design strategies. Retrofitting conventional streets into green streets provides stormwater treatment to remove pollutants from stormwater runoff and when feasible allowed to infiltrate as recharge. Monitoring of stormwater runoff volumes and pollutant loads can be conducted to demonstrate the effectiveness of the retrofit projects. Converted green streets also allow for educational potential to raise awareness about stormwater pollution (and solutions). This course will focus on the many environmentally friendly green infrastructure initiatives in Chicago, Illinois.</p>	2	Fundamental
<b>Green Streets</b>	<p>Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and rivers Ensure the street has the least impact on the surrounding environment Help ensure the safety of the pedestrian or bicyclist on the street</p> <p>Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Green Urban Design</b>	<p>Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements</p>	2	Intermediate
<b>Guide to the FEMA Elevation Certificate V2</b>	<p>The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment or Revision (LOMA or LOMR-F). This interactive online course will provide a comprehensive overview of the FEMA elevation certificate and instructions for how to complete one. You will get the information you need and you will have opportunities to practice filling in samples.</p>	2	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	<p>This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.</p>	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>Heavy Construction Equipment Basics - Earthmoving &amp; Excavating</b>	Contractors do many types of construction activities that require many different types, sizes and groupings of equipment. Most new construction projects are connected to the earth by some type of foundation system. Utilities are located underground so they are less obtrusive and not in the way. Building sites must drain away from the structure and divert the water to a safe place. All of these activities require excavating and earthmoving. The focus of this 3-hour interactive online course is big iron used for excavating and earthmoving. Discussion is intended to be basic. Content is not intended to be comprehensive. Discussion focuses on the basic principles for heavy equipment selection, grouping and simple costing. Earthmoving equipment discussed includes bulldozers, front-end loaders, motor graders, scrapers, and dump trucks. Excavating equipment discussed includes excavators, backhoes and trenchers. A short test must be completed after each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Heavy Construction Equipment Basics - Lifting</b>	Vertical construction requires building a structure up or away from the surface of the earth. The work requires heavy construction equipment for moving workers, materials and other equipment onto the structure as it is built. Hoisting or lifting loads is an integral part of this construction. How it is to be done must be incorporated into the construction strategy and how much it will cost must be included in the budget. Choosing the right lifting equipment and rigging is mandatory for safe vertical construction. Content included in this 2-hour online interactive course is intended to be basic. Discussion focuses on basic principles for lifting equipment selection, capabilities and uses. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>High Performance Landscapes: Protecting and Restoring Soil Health in Urban Landscapes</b>	Healthy soils are the foundation of a sustainable high performance landscape. Traditional design and construction practices often undermine the ability of soils to provide ecosystem services such as stormwater management, optimal plant growth, nutrient cycling, pollutant removal and water conservation. New thinking in the way we build and manage our soils is required for the future health and well-being of humanity. The importance of soils and its many ecosystem services has become more widely recognized and is now a component of green building certification systems such as LEED and SITES. Professionals who understand the basic principles of soil science and its relevance to landscape performance are better equipped to assist projects in achieving economic and environmental benefits. This interactive online course will provide an overview of soil science specific to the landscape design and construction industry, as well as the information needed to improve the overall performance of the site through strategic soil preservation and restoration practices.	2	Intermediate
<b>Highway Engineering: Contracts and Supervision</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Practically all highway construction projects in the United States are public works, which are constructed with public funds. The agency authorizing this construction may be a federal, state, municipal, or county governmental unit, but the greatest number of highway construction projects today are authorized through the various state highway agencies. More than 95 percent of the construction done under state highway supervision is done by contract. The remaining 5 percent is done by the state's own forces organized and equipped to do this work. This 1-hour interactive online course covers the procedure generally followed by most state highway agencies in preparing contractual documents and in supervising construction. The course reviews unit pricing, the bid process, documentation, subcontracting, prequalification, state and federal agreements, bidding mechanics, unbalanced bids and construction supervision. This is the seventh course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Highway Engineering: Highway Drainage and Surveys</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. One of the most important considerations in locating and designing rural highways and city streets is providing adequate drainage. Adequate and economic drainage is absolutely essential for the protection of the investment made in a highway structure and for safeguarding the lives of the persons who use it. This 4-hour interactive online course discusses some of the fundamental concepts of highway and street drainage. Surface drainage in essentially rural areas is discussed in considerable detail; accompanying this is a discussion of measures for the prevention of erosion of shoulders, sideslopes, and side ditches. Considerable space is devoted to the location, design, and construction of culverts. Material is also presented relative to subdrainage, and the course concludes with a brief discussion of drainage in municipal areas. This is the sixth course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Highway Engineering: Part 1 - Highway Materials, Maintenance and Rehabilitation</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the first half of the eighth course in a series on highway engineering. This course describes some of the physical characteristics and quality control tests for soils, aggregates, bituminous materials, and portland cement. Detailed material specifications and tests for these and other highway construction materials have been published by the American Association of State Highway and Transportation Officials.	8	Intermediate
<b>Highway Engineering: Part 2 - Highway Materials, Maintenance and Rehabilitation</b>	Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the second half of the eighth course in a series on highway engineering. This course covers high-type pavements, concrete pavements, maintenance and rehabilitation.	8	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
Highway Rumble Strips	Rumble strips are a common safety feature incorporated into new roadway designs. This 1-hour interactive online course contains information on state-of-the-practice for the design and installation of shoulder rumble strips and provides guidelines for their use on appropriate rural segments of the National Highway System (NHS). The text of the course is taken from the Federal Highway Administration's Technical Advisory on rumble strips. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Historic Preservation: An Introduction	Historic Preservation is the identification, protection and enhancement of historic resources or features. This 1-hour interactive online course covers not only the general underpinnings of the preservation and rehabilitation process, it also outlines the specifics on how to inspect and work with specific materials. Historic structures originate from a wide variety of time periods and areas. Consequently, there are a large variety of different materials examined in this course. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
Historic Preservation: Concrete and Terra-Cotta	Terra-cotta and concrete construction have created some of the world's most distinctive and historically significant structures. Unfortunately, many early concrete and terra-cotta buildings are threatened by deterioration. Effective protection and maintenance are the keys to the durability of these materials-many can be saved through preservation projects involving sensitive repair and replacement. This 1-hour interactive online course outlines the historic background of concrete and terra-cotta, the causes of their deterioration, methods to effectively inspect and analyze their current state as well as techniques of maintenance, repair and replacement. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
Historic Preservation: Energy Conservation	With the dwindling supply of energy resources and new efficiency demands placed on the existing building stock, many owners of historic buildings and their architects are assessing the ability of these buildings to conserve energy with an eye to improving thermal performance. This 1-hour interactive online course has been developed to assist those persons attempting energy conservation measures and weatherization improvements such as adding insulation and storm windows or caulking of exterior building joints. In historic buildings, many measures can result in the inappropriate alteration of important architectural features, or, perhaps even worse, cause serious damage to the historic building materials through unwanted chemical reactions or moisture caused deterioration. This brief recommends measures that will achieve the greatest energy savings with the least alteration to the historic buildings, while using materials that do not cause damage and that represent sound economic investments. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
Historic Preservation: Exterior Additions and Substitutions	The Secretary of the Interior's Standards for Rehabilitation require that deteriorated architectural features be repaired rather than replaced wherever possible. In the event that replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual properties. This 1-hour interactive online course discusses the importance of maintaining historic character and illustrates how and when substitute materials may be used to match the appearance and general properties of the historic material without damaging the historic resource. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
Historic Preservation: Rehabilitating Interiors	While the exterior of a building may be its most prominent visible aspect, or its public face, its interior can be even more important in conveying the building's history and development over time. This 1-hour interactive online course has been developed to assist building owners and architects in identifying and evaluating those elements of a building's interior that contribute to its historic character, and in planning for the preservation of those elements in the process of rehabilitation. The information covered applies to all building types and styles, from 18th century churches to 20th century office buildings. The course discusses historic interior paints, and addresses a variety of materials and features: plaster walls and ceilings; wooden doors, molding, and trim; and metal items such as radiators and railings. It provides background information about some of the types of paint which were used in the past, discusses the more common causes and effects of interior paint failure, and explains the principal factors guiding decisions about repainting, including what level of paint investigation may be appropriate.	1	Fundamental
Historic Preservation: Roofing for Historic Buildings	No matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitably fail. A poor roof will permit the accelerated deterioration of historic building materials-masonry, wood, plaster, paint-and will cause general disintegration of the basic structure. This 2-hour interactive online course covers the historic character of a building, describes how to examine and record the existing roof, considers historic craftsmanship and gives detailed instructions on how to properly research, stabilize, repair and replace historic roofs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
Hurricane Damage Investigations - Wind vs. Water	In the aftermath of a hurricane, being able to determine wind damage vs. water damage is very important. This interactive online course will describe a methodology based on engineering principles and coastal science to determine the extent of damage to coastal buildings impacted by storm surge and high winds, based on wind field analysis matched to storm surge inundation and wave heights. This course provides an engineering investigative method that helps the engineer be the real expert when it comes to determining losses from damaging coastal storms.	2	Intermediate
Hurricane Damage: Wind vs. Water Determination	In many areas, the insurance industry offers expensive insurance against damage by wind and separate expensive insurance against damage from flooding (FEMA offers inexpensive insurance against flood damage). When a person purchases a home, the mortgage company invariably wants its investment covered by a homeowner's policy. A typical homeowner's policy includes insurance for damage done by wind; however, as the typical home is not imperiled by flooding, a policy does not include insurance from damage due to flood waters. Thus the problem faced by the inspector when a hurricane hits. Was the damage caused by the wind or the water? The author of this course spent 15 months covering the damage caused by hurricanes Katrina and Rita in the Gulf and created this 1-hour online course to educate those who are in that predicament due to the loss of their home or business, and those who are providing assistance to the insurance companies. This course takes a look at three specific scenarios of structure damage from the 2005 Gulf Hurricanes and provides numerous photographic examples. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
HVAC Acoustics	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
HVAC Design	This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today.	1	Fundamental
HVAC Distribution	This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system.	1	Fundamental
HVAC HEPA Filters	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental
HVAC System Fans	Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations.	3	Fundamental
Hydraulic Design of Storm Sewers	Storm sewers are the hidden workhorse of our infrastructure. They are designed to ensure our urbanized communities remain dry and maintain safety during extreme events. For this reason it is important that storm sewers are designed with special detail and care. This interactive online course will discuss the design of storm sewer systems and its two core theories, the conservation of mass and energy. A sample spreadsheet will be provided as part of the course to help practitioners in the design of storm sewers.	2	Advanced
Impacts of the 2010 ADA Guidelines	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
Increasing Building Energy Efficiencies: Policies and Practice	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
Infrastructure 101: Repairing Pandora's Box	What will you find when you open a manhole for repair? For most engineers and utility managers their first introduction to infrastructure management is an emergency call for a manhole collapse or similar catastrophic failure. In part, they can be prepared for this by understanding the root causes of failure and the appropriate types of repair and replacement necessary and by having an appropriate plan of action in place. Preventative and remedial plans require the same level of detail and understanding to avoid recurrence and busted budgets. A manhole repair need not be Pandora's box. In this interactive online course, we will discuss different approaches to infrastructure management, including various materials used in the rehabilitation of manholes. Alternative strategies used to improve safety, reduce public health or environmental risks, and reduce costs will also be covered.	1	Fundamental
Inland Wetland Restoration	Design professionals are often expected to understand the fundamentals of wetland creation and restoration. Today numerous projects are coupled with wetland creation or restoration permitting conditions. Fulfilling these conditions is no easy task, given that a project must meet certain criteria for success-for instance, a 75% success rate for plantings after two or three growing seasons. Further, the disquieting fact is that more than 50% of created or restored wetlands nationwide fail within a few years. New wetlands may be subject to massive plant die-off, invasions by unintended or non-native plants and insects, or are planted with incorrect species (usually as the result of poor monitoring during initial construction). Other factors can impact them as well. This interactive online course covers the basic parameters required for all successful inland wetland creation. It introduces a sample report of a proposed restoration project, and discusses how to approach a problem site. Finally, it wraps up with a look at the obvious pitfalls and the critical tools necessary to design a successful wetland. This course is a supplement to A Wetland Primer for Design Professionals and Advanced Wetlands Primer: Field Evaluation & Permitting by the same author.	2	Intermediate
Innovative Heat Pump Technology	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
International Building Code & More: About the Codes	A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>International Building Code &amp; More: Code Officials and Code Processes</b>	This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Family Residences, Existing Structures and Historic Buildings</b>	This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Finish and Furniture Selection</b>	This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Intermediate
<b>International Building Code &amp; More: Means of Egress</b>	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental
<b>International Building Code (IBC) - Assembly Spaces</b>	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code (IBC) - Care Facilities Provisions</b>	This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code Significant Changes to 2012 Edition</b>	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental
<b>International Snapshot on Sustainable Infrastructure</b>	The scientific community overwhelmingly agrees that global warming and changing climate patterns will become more disruptive and have detrimental impacts on essential sectors of our society. These changes, such as extreme weather events, rising temperatures, flooding and droughts, all significantly impact our infrastructure. We are faced with simultaneous threats of aging infrastructure, damage from a changing climate, lack of funding and political paralysis. So how do we respond? Looking around the world, who is taking action now and leading innovations on tackling the challenges of creating sustainable infrastructure systems. The aim of this course is to present a snapshot of this complex dilemma.	2	Fundamental
<b>Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
<b>Introduction to Net Zero Buildings</b>	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Introduction to Sustainable Design and Construction Using Green Globes</b>	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental
<b>Introduction to Sustainable Roof Technologies</b>	Roofs account for one of the largest areas of imperviousness on a site. Impermeable roofs impact storm water quality and quantity, air quality, the urban heat island effect, and the energy needs of the building. This interactive webcast focuses on how we can potentially rethink how we build our roofs to ensure energy efficient buildings, harness energy from the sun to help us reduce our reliance on fossil fuels (nonrenewable energy), manage storm water as a resource, increase air and water quality, and reduce greenhouse gas emissions. We will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. We will conclude with creative applications and site selection and placement considerations of sustainable roofs.	2	Fundamental
<b>Introduction to the ISI Envision Rating System</b>	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
<b>Introduction to Wetlands</b>	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
<b>Land Development Projects: Design of Infrastructure</b>	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental
<b>Land Development Projects: Developing Feasibility Studies</b>	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
<b>Land Development Projects: Grading and Drainage Design</b>	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
<b>Landfill Gas Collection and Treatment Systems</b>	Over two hundred million tons of garbage are generated in the US every year. Over 97% of this garbage ends up in landfills. This garbage decomposes, potentially releasing harmful gases to the environment. Without landfill gas collection and treatment systems, the effect of these releases would be severe. This interactive, online course provides an introduction to the theory of landfill gas collection and treatment systems and presents practical parameters that can be utilized to develop detailed system designs.	3	Fundamental
<b>Lead Contamination of Public Water Systems</b>	Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least \$384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
Leak Detection for Roofs	Leak detection is an important job. Utilization of both scientific and artful techniques enables you to detect a leak in the least time with the least work. To do this, you must first understand the roof system that you are looking at, and know all its components and their function. This 1-hour interactive online course details specific techniques of detecting leaks in various waterproofing media, with an endeavor to give the professional practical and usable techniques that they can employ in the course of handling this important job. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Lean Manufacturing: Continuous Improvement and the PDCA Cycle	Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes.	0.5	Intermediate
Lean Manufacturing: Determining the Voice of the Customer	The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a business success and describes how to anticipate and meet customer needs and requirements once this data is captured.	0.5	Intermediate
Lean Manufacturing: Kaizen	Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet today's challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive on-line course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day.	0.5	Intermediate
Lean Manufacturing: Kanban	Did you know the word Kanban is of Japanese origin and translates to billboard or signboard? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it.	0.25	Intermediate
Lean Manufacturing: Poka-Yoke	This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction.	0.25	Intermediate
Lean Manufacturing: Pull Systems	This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While we'll introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes.	0.5	Intermediate
Lean Manufacturing: Standardized Work	This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting.	0.5	Intermediate
Lean Manufacturing: Value and Waste	Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value.	0.5	Intermediate
Lean Manufacturing: Value Stream Mapping	Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool.	0.5	Intermediate
Lean Manufacturing: Visual Management	Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information.	0.25	Intermediate
LEED v4 - Certified Buildings Under the O&M and BD+C Categories	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
LEED v4 - Operations and Maintenance	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>LEED v4 and Data Center Construction</b>	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental
<b>LEED v4 and the Future of Green</b>	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criteria and its impact on the future of sustainable new construction.	1	Intermediate
<b>LEED v4 for Commercial Office Buildings</b>	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Existing Buildings: Operation &amp; Maintenance (EBOM)</b>	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
<b>LEED v4 for Healthcare Facilities</b>	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Hospitality Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for Interior Design + Construction</b>	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
<b>LEED v4 for New Construction Projects</b>	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
<b>LEED v4 for Retail Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for School Buildings</b>	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>LEED v4: Neighborhood Development</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals -- from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
<b>LEED v4: Residential Homes</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>LEED: Water Efficiency</b>	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate
<b>LID Technologies</b>	A low-impact development (LID) design approach is defined as a combination of hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. This course will provide an overview and introduction into the philosophy, objectives, various design approaches, economic and environmental benefits, and management practices of low-impact development. Specifically, course will demonstrate how to develop land and maintain the predevelopment hydrologic regime by using current structural and nonstructural storm water management technological approaches.	2	Fundamental
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Emerging Issues in the LNG Industry</b>	In this online interactive course, we provide an overview of some of the key emerging issues in the LNG industry including whether North America will become a major LNG exporter, the potential impact of the Panama Canal expansion project on LNG trade, the growing role of floating LNG (FLNG), the potential influence of the Gas Exporting Countries Forum (GECF) to act as a Gas OPEC, and the emergence of LNG as a shipping and vehicle fuel to aid in emission reduction efforts around the world.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Evolution of LNG Markets &amp; Primary Demand Regions</b>	The first ever US-UK shipment of LNG in 1959 on the Methane Pioneer demonstrated that large quantities of LNG could be transported safely across the ocean and opened up the possibility of transporting large volumes of natural gas from otherwise stranded fields to distant destinations based on consumer demand. This interactive online course will discuss the evolution of LNG markets, including the history of LNG and an overview of the three major LNG Markets - Asia-Pacific LNG market, the European LNG market, and the North American/Atlantic Basin LNG market, which includes North America, South America and Latin America.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Demand &amp; Emerging Demand Markets</b>	Until the late 1990s, LNG was a niche industry operating mostly in the Asia-Pacific region. As the world entered the 21st century, however, global demand for LNG surged in a perfect storm created by the industrial and commercial boom around the world that resulted in an ever-growing appetite for all energy resources. Between 2000 and 2008, the LNG industry entered a period of rapid growth with huge increases in supply coming from a growing number of LNG producing countries. However, between 2008 and 2009, the world endured the worst recession since the Second World War with demand for all energy dropping significantly. In 2010, as global economies appeared to be emerging from the recession, global natural gas demand resumed its long-term upward trajectory with the IEA projecting that natural gas will be the only fossil fuel for which demand is higher in 2035 than in 2008. While the ultimate wildcard for all natural gas demand is the pace and strength of the global economic recovery, the long term outlook for natural gas and LNG remains strong. In this interactive online course, we will identify LNG demand drivers. We will examine existing and emerging Asia-Pacific and European importers, and discuss the reasons behind the increased LNG demand in Latin America. We will also consider the natural gas puzzle faced by the Middle East/North African region. Lastly, we will investigate the market trends causing the U.S. to shift from LNG importer to LNG exporter.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Projects &amp; Players</b>	How well versed are you in the Liquefied Natural Gas (LNG) industry? Do you know where and how much is produced? In this interactive online course, we will examine the specifics of the global LNG mega projects in Qatar and Australia, and also discuss new players and projects in countries such as Russia, Peru, Yemen, and Papua New Guinea.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Supply</b>	Although worldwide natural gas resources are sufficient to meet projected increases in demand, almost half of the world's proved natural gas reserves are found in just three countries: Russia, Iran and Qatar. With the world's largest proved natural gas reserves, the Middle East and Africa are expected to account for 72 percent of the increase in natural gas exports by 2030, mainly to supply Europe and North America, although Australia is also emerging as a key LNG exporter and also potentially the US and Canada. Understanding where new LNG supply will come from is one of the critical aspects of understanding the dynamics of the global LNG industry. This interactive online course provides a description and overview of key LNG supply projects around the world, discusses the impact these projects will have on the LNG global market, and identifies some of the challenges that may be faced by new projects.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Globalization of LNG</b>	The growth in LNG trade over the past few years has led many to question whether the LNG markets have become globalized and whether LNG could ever trade as a global commodity. This interactive online course discusses the increased globalization of LNG markets and whether LNG could someday trade as a global commodity. The growth of LNG trade will be examined as well as the traditional oil-linked pricing structure for LNG. Recent pricing issues and the growing spot and short-term LNG market will also be discussed.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Natural Gas &amp; LNG in the 21st Century</b>	Policy makers around the globe continue to grapple with issues related to energy security, energy affordability, and an expected increase in demand for all energy sources. At the same time, concerns about global climate change and reducing greenhouse gas emissions remain in focus as the world struggles to define the path to a sustainable energy future. Since natural gas is an abundant, affordable, and clean-burning fuel, many countries around the world are increasingly looking to natural gas to play a key role in powering the future. The prospects for natural gas are so promising that the International Energy Agency (IEA) has suggested that the 21st century could be the Golden Age of Gas with demand for natural gas projected to increase by more than 50 percent from 2010 levels and account for over 25 percent of the world's energy supply mix by 2035. This interactive online course explores the growing role of LNG as the glue linking global gas markets and identifies the key opportunities and challenges for the LNG industry in the context of a number of competing drivers, including economic development, energy security, and climate change.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Safety &amp; Environmental Sustainability of LNG</b>	Do you have a solution to meet an ever-growing energy demand around the world? Many governments are looking to Liquefied Natural Gas. Not everyone agrees the LNG is the best answer. They claim there are serious safety and environmental impacts that negate the benefits of LNG as a fuel. In this interactive online course, we analyze how LNG can play a role in a sustainable energy future. Specifically, we will focus on the safety issues and environmental issues that accompany the use of LNG.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Liquefied Natural Gas (LNG): The Impact of Shale Gas on Global Gas Markets</b>	The tremendous boom in US shale gas has been a game changer all over the world. What do you predict for the future? This online interactive course will discuss shale gas. We will describe the markets as well as importing and exporting liquefied natural gas worldwide. We will focus most on North America.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The LNG Value Chain</b>	The LNG value chain comprises a complex set of activities, all of which are capital intensive and require specialized knowledge in order to execute successfully. This interactive online course discusses the main stages of the LNG value chain - liquefaction, shipping and regasification and identifies the technologies used in these processes. Various LNG project structures and some basics of LNG measurement will be covered as well. The information in this course on the LNG value chain is designed to provide you with the foundation to develop a successful LNG project.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The Role of Shale Gas in the Golden Age of Gas</b>	How much do you know about shale gas? Since the development of unconventional gas resources is different and more challenging than conventional resource development, a basic understanding of the different types of gas reservoirs is helpful in order to appreciate the difficulties involved in extracting natural gas from certain types of reservoirs. In this interactive online course we will discuss the shale gas revolution, it's production, and the technologies used to unlock it from shale.	1	Intermediate
<b>Lot 21 -- A Dave Gibson Lot and Block Case</b>	This 2 hour online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course makes up a portion of the larger 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Making the Flood Zone Determination</b>	Mention the words flood zone determination company to a floodplain manager, surveyor or engineer involved with floodplain management, and you are likely to hear a variety of questions about how and why flood zone determination companies make the decisions they do. This 3-hour online course reviews the research process used by these determination companies, gives you a hand at making determinations with the same information that map researchers use and provides information on the association that links the companies who do 90 percent of the determinations nationwide. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Material Science: Properties of Metals</b>	This 2-hour interactive online course is designed to assist nuclear facility operating contractors in providing operators, maintenance personnel, and technical staff with the necessary fundamentals training to ensure a basic understanding of the properties of metals. Since almost all processes that take place in a nuclear facility involve the use of specialized metals, a basic knowledge of material science is important because it enables contractor personnel to understand why a material was selected for a certain application within their facility. This knowledge will help personnel more fully understand the impact that their actions may have on the safe and reliable operation of facility components and systems.	2	Fundamental
<b>Material Science: Structures of Metals</b>	This 1-hour online interactive course is designed to assist nuclear facility operating contractors in providing operators, maintenance personnel, and technical staff with the necessary fundamentals training to ensure a basic understanding of the structure and properties of metals. Since almost all processes that take place in a nuclear facility involve the use of specialized metals, a basic knowledge of material science is important because it enables contractor personnel to understand why a material was selected for a certain application within their facility. This knowledge will help personnel more fully understand the impact that their actions may have on the safe and reliable operation of facility components and systems.	1	Fundamental
<b>Membrane Filtration - Part 1: Process, Products &amp; Materials</b>	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This 1-hour online course is the first of several courses on the subject of membrane filtration. The course covers an introduction to the subject, including membrane processes, products, materials and limitations. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Membrane Filtration - Part 2: System Components &amp; Pumps</b>	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This 1-hour interactive online course is the second of several courses on the subject of membrane filtration. The course covers system components, including heat exchangers, valves, pressure gauges, flowmeters, tanks and pipes. It also covers pump types and pump selection because without a pump, there is no membrane filtration system. This course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced



## Engineering (Continued)

Title	Description	Hours	Level
<b>Membrane Filtration - Part 3: Plant Functions and Pretreatment Methods</b>	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high-purity water. This course is the third of several courses on the subject of membrane filtration. This 1-hour interactive online course covers single-pass and multi-stage plant design; plant functions including start, stop and flush; and pretreatment methods and strategies. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Membrane Filtration - Part 4: Cleaning, Measuring, Controls and Pumps</b>	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This course is the fourth in a series of several courses on the subject of membrane filtration. The 1-hour online course covers water supply and drains, chemicals for cleaning, sterilization, measuring devices, common control loops and control of pumps. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Metes &amp; Bounds Surveys: An Essential Review</b>	This course reviews the definition of metes and bounds land descriptions, looks at the origin of metes and bounds and discusses known problems with this ancient method of describing land for the purpose of conveyance. It defines where metes and bounds is still practiced in North America. The course compares Public Land Survey System (PLSS) surveys to metes and bounds surveys. It discusses the principles and applications of junior-senior rights as encountered in metes and bounds states. The course also looks at so-called quasi metes and bounds descriptions. The emphasis of this course is on gaining a thorough understanding of metes and bounds—an often poorly understood concept—and its proper application. Pitfalls and liability are discussed, along with strategies to avoid the temptation to rely too heavily on the literal use of bearings and distances in metes and bounds descriptions.	1	Fundamental
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microgrids and the City</b>	Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources.	1	Intermediate
<b>Minimum Technical Standards for Georgia Land Surveyors</b>	This 1-hour interactive online course reviews technical standards for property surveys set by the Georgia State Board of Registration for Professional Engineers and Land Surveyors. The technical standards were established to assure the public that proper and adequate surveys, maps, plats and writings are executed in connection with property. This course covers standards involving land titles and location, horizontal and vertical measurements, monuments, coordinates and triangulation, maps and plats, and violation. This course includes a multiple choice quiz at the end. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Mississippi Standards of Practice for Surveying</b>	The Minimum Standards of Land Surveying applied to all survey plats performed in Mississippi from 1991 to June 30, 2005 (Rule 21). On July 1, 2005, new standards became effective, the Standards of Practice (revised Rule 21). A third revision of Rule 21 became effective on August 1, 2015 and required a new checklist. A fourth revision of Rule 21 became effective on April 15, 2017, however the changes were minor and did not require any update to the checklist.	1	Fundamental
<b>Modern Environmental Laws</b>	There are a series of federal laws and Executive Orders since 2005 that have reinforced the federal government's commitment to energy conservation and environmental sustainability, including the Energy Policy Act of 2005 (EPAAct) Executive Order 13423, Energy Independence and Security Act of 2007 (EISA), and Executive Order 13514. This webcast will discuss the mandates outlined in these federal laws and executive orders that require NetZero energy for all new federal construction and alterations by 2030 and a reduction of water consumption of 20% by FY 2020. The course also includes new greenhouse gas (GHG) emissions management requirements, expanded water reduction requirements for federal agencies, and address waste diversion, local planning, sustainable buildings, environmental management, and electronics stewardship.	3	Fundamental
<b>Modern Shale Gas Development</b>	The course provides an overview of modern shale gas development, as well as a summary of federal, state, and local regulations applicable to the natural gas production industry, and describes environmental considerations related to shale gas development. It describes the importance of shale gas in meeting the future energy needs of the United States including its role in alternative energy strategies and reducing greenhouse gas (GHG) emissions. The course is intended to serve as a technical summary document, including geologic information on the shale gas basins in the U.S. and the methods of shale gas development. By providing an overview of the regulatory framework and the environmental considerations associated with shale gas development, it will also help facilitate the minimization and mitigation of adverse environmental impacts. By so doing, the course can serve as an instrument to facilitate informed public discussions.	3	Intermediate
<b>Mold Basics</b>	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Montana 4 Hour 2017 NEC Changes: Program 1</b>	This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC) and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial	4	Intermediate
<b>Montana 4 Hour 2017 NEC Changes: Program 2</b>	This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements	4	Intermediate
<b>Movement Joints in Brick Masonry</b>	Brick masonry is one of the most durable exterior building materials in use around the world. It is a preferred product in most climate areas, from subtropical to near arctic, and for buildings from simple residences to monumental international architecture. When Mies van der Rohe proclaimed God is in the details, he may very well have been thinking of masonry construction. Masonry's long term success depends on designers and installers understanding the physics of masonry movement and the time-tested methods of accommodating that movement. This need is particularly important in commercial and institutional buildings due to their more rigid structural construction and the size of their walls. This 1-hour online interactive course discusses a number of different causes of brick movement and the methods that can be used to accommodate this movement.	1	Fundamental
<b>Multistage Centrifugal Pump Maintenance</b>	Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single-stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.	1	Intermediate
<b>Multistage Centrifugal Pumps</b>	A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps.	0.25	Intermediate
<b>Nanotechnology and Sustainability</b>	Are you ready for your world to change due to the contributions of nanotechnology? You can be confident in your understanding of nanotechnology, its impacts, and its relationship to sustainability. You can reap the benefits for yourself and your clients. This webcast gives you the potential that nanotechnology, specifically nano-products, brings to sustainability. Topics include new energy creation and storage opportunities, improved product durability, water quality improvement, pollution mitigation, as well as benefits and potential dangers of nanotechnology.	1	Intermediate
<b>Natural Gas Systems - Sizing and Design Consideration</b>	What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes, Knowing the requirements of the natural gas utility supplier, Venting requirements, Pipe identification and labeling requirements, Pipe support requirements, Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, and Selection of piping material.	1	Intermediate
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements</b>	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding &amp; Bonding, and Enclosure Boxes</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3</b>	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
<b>North Carolina Mapping Requirements</b>	In order to safeguard life, health, and property, and to promote the public welfare, the practice of engineering and the practice of land surveying in North Carolina are subject to regulation. This one hour interactive online course covers North Carolina's mapping requirements, also known as NCSG 47-30. This standard relates to the practice of surveying and mapping. A short quiz follows. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Oklahoma 6 Hour 2017 NEC Changes Program</b>	<p>This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding &amp; Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314.</p>	6	Intermediate
<b>Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements</b>	<p>This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.</p>	2	Intermediate
<b>Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	<p>This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.</p>	2	Intermediate
<b>Oregon 2017 NEC Changes:Overcurrent Protection, Grounding &amp; Bonding, and Enclosure Boxes</b>	<p>This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding &amp; Bonding (RV-11107)Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108)Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings</p>	2	Intermediate
<b>Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment</b>	<p>This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.</p>	2	Fundamental
<b>Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches</b>	<p>This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles.</p>	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #2</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #3</b>	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
<b>OSHA 10 Hour Construction Program</b>	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA Electrical Safety Fall Protection Struck-By & Caught-Between Accidents Personal Protective Equipment (PPE) Scaffolds Cranes Hand & Power Tools Excavations Materials Storage Demolition Hazards in Construction	10	Fundamental
<b>Overcurrent Protection I - Short Circuit Calculations</b>	This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Overcurrent Protection II - Coordination</b>	This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Palm Court - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Palm Harbor - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Parking Lot Design: Elements of Design</b>	This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.	2	Advanced
<b>Parking Lot Design: Essentials</b>	This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Parking Lot Design: Parking Studies</b>	This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>Petroleum and Natural Gas: Mud Logging Sensors and Modern EDR Systems</b>	Technology advances with the passage of time. The existence of portable and digital processors provides proof of this advancement in technology. There is a rising demand for enhanced equipment such as geo-pressure control and administration, contributing to the need for an additional degree of drilling machinery monitoring or observing, mud circulation pressure, volume, and flow ratio sensors. This course discusses drilling data monitoring and drilling data analysis, the types of recorders used to monitor, rotary system management and circulating system management, and properties of mud.	1	Intermediate
<b>Petroleum Drilling Technology</b>	This course is designed to convey the oil and gas drilling aspects to the construction professionals. Drilling operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. Drilling fluids are composed of such chemicals which are dangerous for human health if they are not handled properly. So for a new person in this field, it is essential to have sound theoretical knowledge about it before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of oil and gas, he/she may not be recommended for any field work.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Petroleum Engineering: Liquid Process Piping - General Piping Design</b>	Liquid process piping systems are used in many different industries to convey liquids to, from and between pumping, storage and treatment units. Proper design and construction of liquid process piping is necessary to ensure the integrity of a piping system during its service lifetime. This 2-hour interactive online course is the second in a series on general piping design including materials of construction, design pressure, sizing, stress analysis, flange, gaskets, and bolting materials, pipe identification, piping supports, and testing and flushing. Familiarity with the standards and recommendations for design of pressure piping will prepare the designer to make informed decisions throughout the design process.	2	Fundamental
<b>Petroleum Engineering: Liquid Process Piping - Introduction and Design Strategy</b>	Liquid process piping systems are used in many different industries to convey liquids to, from and between pumping, storage and treatment units. Proper design and construction of liquid process piping is necessary to ensure the integrity of a piping system during its service lifetime. This 1-hour interactive online course is an introduction to the design strategy of liquid process piping including piping design analysis, specifications, drawings, bases of design, loading conditions, and piping layout. Familiarity with the standards and recommendations for design of pressure piping will prepare the designer to make informed decisions throughout the design process.	1	Fundamental
<b>Petroleum Instrumentation and Measurement</b>	This course is designed to convey the basics of oil and gas instrumentation and measurement (primarily downstream) to the construction professionals and learners. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about measurement instruments and measuring techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and instruments, he/she may not be recommended for any field work. This course is important to impart basic knowledge of process variables measuring instruments and their measuring techniques which we use in oil and gas downstream. It also conveys the knowledge of process control automation and control valves.	2	Fundamental
<b>Petroleum Refining Processes and Related Health and Safety Considerations</b>	The petroleum refining industry is one of the largest sources of greenhouse gases among all manufacturing sectors in the US economy. Along with the environmental impacts of their operations, refiners face complex regulatory issues involving their products. The nature and chemistry of different major refinery products or by-products and their effects on human health and the surrounding environment makes it imperative for regulatory agencies like the EPA to impose heavy regulations on the petroleum refining industry in comparison to other industries in the US. It is important that the practitioners associated with the petroleum refining industry know about the operations in the refining process, the nature of the major products and by-products from the refining industry, the chemicals used in the process, and the overall impacts of the refining process and products on human health and safety to meet the ever increasing regulatory requirements of this industry. This course aims to fulfill these requirements by discussing the basic chemicals, processes, products and environmental impacts involved in refining petroleum.	3	Fundamental
<b>Phasors and AC Circuit Analysis</b>	This course will build a foundation of skills you can use to become familiar with concepts involved with fault load and load flow studies, along with arc flash analysis in electrical power distribution systems. This course is also an ideal refresher course for electrical engineers preparing for the PE Exam (ECE - Power). Basic concepts covered in this course include: The sinusoidal forcing functions and phasor notation Phasor relationships for resistors, inductors, capacitors and the concept of impedance Analysis of single and poly-phase electric circuits Power in single-phase and balanced three-phase circuits Per-unit quantities and changing the base of per-unit quantities	2	Fundamental
<b>Pier and Beam Foundation Design</b>	This course will provide technical information important in the design of pier and beam foundation systems. The design process will focus on how to apply wind and flood loads to these foundation systems using ASCE 7-10, ASCE 24, the Wood Frame Construction Manual and the International Building Codes. The use of the masonry code will also be covered. An example is included that uses elements of each of the important references. Design methods for these foundations are not covered in most structural engineering programs at the university level and have not been found in any practice journals. While the design wind loads are frequently determined for buildings, the distribution of these loads to the foundation and supporting soil and the inclusion of flood loads are important and crucial elements of the design process.	2	Advanced
<b>Pipes and Valves: Basic Pipefitting Skills</b>	Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square.	2	Intermediate
<b>Pipes and Valves: Calculating Offsets</b>	Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets.	2	Intermediate
<b>Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe</b>	Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method.	2	Intermediate
<b>Pipes and Valves: Installing Pipe Hangers and Supports</b>	Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors.	2	Intermediate
<b>Pipes and Valves: Installing Screw and Welded Pipe</b>	Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping.	2	Intermediate
<b>Pipes and Valves: Pipes and Pipe Fittings</b>	This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe.	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Pipes and Valves: Special Calculations</b>	Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures.	2	Intermediate
<b>Pipes and Valves: Valve Maintenance</b>	This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it.	2	Intermediate
<b>Pipes and Valves: Valve Types and Operation</b>	This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated.	2	Intermediate
<b>Plan Review Techniques for Infrastructure Projects</b>	Infrastructure projects take an immense amount of planning - drawings and specifications, design and construction teams, and communication. You can be the effective coordinator of a successful project if you know the right plan review techniques and use them expertly. This interactive online course teaches you those techniques and gives you the checklists you can start using right away to achieve your goals in completing an infrastructure project you can be proud of.	2	Intermediate
<b>Positive Displacement Pump Maintenance Basics</b>	The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures.	1	Intermediate
<b>Positive Displacement Pumps</b>	A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs.	0.5	Intermediate
<b>Post Disaster Recovery and Reconstruction</b>	Post-disaster redevelopment is essential to create (or recreate) a disaster-resilient community. In this Webcast, we will provide you with disaster recovery information. You will get strategies for economic rebound, housing recovery, health and social services, infrastructure, land use, and environmental restoration.	2	Intermediate
<b>Power of an Energy Audit</b>	An energy audit is often the first step in energy consumption reduction. This interactive webcast will introduce green building professionals to the importance of conducting an energy audit to assess energy use and measures to implement for energy conservation. We will discuss the four levels of analysis, including: benchmarking, walk-through audit, detailed/general energy audit, and investment-grade audit. This course will also focus on how auditing can help identify cost-saving opportunities and prioritize improvements. An energy audit is an inexpensive yet powerful way to reduce costs and improve performance. Energy audits also are an important step to help meet greenhouse gas reduction goals. Finally, we will focus on the competitive positioning of energy auditing by touting successes and attracting and engaging more customers.	2	Fundamental
<b>Power Transmission &amp; Distribution - Basic Equipment and Terminology</b>	This course covers basic information regarding the transmission and distribution of electric power, including components of transmission lines, transformers and switchgear, substations and electric power distribution systems. General information related to electric service loads is covered, as well as operational aspects and costs involved in transmitting and distributing electric power. The future of electric power transmission is also discussed, providing some thoughts on what trends may be seen in coming years. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Power Transmission and Distribution</b>	This webcast covers transmission and distribution of electric power, including components of transmission lines, transformers, switchgear, substations, and electric power distribution systems. General information related to electric service loads is covered, as well as operational aspects and costs involved in transmitting and distributing electric power.	1	Fundamental
<b>Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project</b>	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
<b>Principles of At-Risk Construction Management</b>	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
<b>Principles of Design-Build</b>	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental
<b>Principles of Professional Construction Management</b>	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
<b>Priority of Calls in Boundary Resolution</b>	Retracement surveyors encounter conflicting boundary evidence in the field almost every day, and it is the task of the surveyor to resolve these inconsistencies. Following in the footsteps of previous surveyors is challenging. This course teaches surveyors how the long-established priority of calls is used to weigh boundary evidence. You'll learn how certain types of evidence is considered more reliable--and legally defensible--than others. You will be presented with court decisions governing boundary resolution, and then review case studies that reflect real-world situations.	1	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Risk Management</b>	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Project Team Management</b>	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Protecting and Restoring Habitat in Urban Ecosystems</b>	Ecosystems provide humanity with the products and services needed to sustain a high quality of life on this planet. Unfortunately, urban development and mechanical disturbance destroy or damage over 400 square miles of ecosystems every year in the United States alone (Johnson, Brown, Loveland, & Theobald, 2005). However, with thoughtful preservation and restoration, living systems can be integrated into our built environments and can continue to provide services such as clean air, clean water, climate regulation, wildlife habitat, and improved human health and well-being. This interactive online course will help you understand how the design and management of habitat in urban areas affects the services it provides to the community. It will discuss the processes that drive the development of ecosystems and how these processes can be used to restore and manage nature in urban settings. The course will cover strategies for habitat mitigation. It will also discuss the components of restoration and Integrated Pest Management plans. Lastly, the course will describe strategies for achieving community understanding and support for urban habitat conservation.	3	Intermediate
<b>Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection</b>	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental
<b>Protecting People Against Terrorist Attacks: Structural Design Criteria</b>	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
<b>Protecting Water Systems Through Backflow Prevention</b>	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
<b>Protecting Your Communications System from Transients and Surges</b>	Lightning and power surges cause millions of dollars in damage each year. In this webcast you will learn how to use surge protection and proper grounding methods to improve reliability of communications network and reduce damage to equipment.	1	Intermediate
<b>Pumping Stations - Pumps, Motors and Electrical Systems</b>	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Pumps Introduction</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes. This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications.	0.25	Intermediate
<b>Pumps: Fundamentals of Centrifugal Types</b>	This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system.	2	Intermediate
<b>Pumps: Multistage Centrifugal</b>	This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary.	2	Intermediate
<b>Pumps: Operation of Centrifugal Types</b>	This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump.	2	Intermediate
<b>Pumps: Performance and Inspection</b>	This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations.	2	Intermediate
<b>Pumps: Reciprocating Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>Pumps: Rotary Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>PVC Pipe - Which type should I use?</b>	Poly vinyl chloride (PVC) pipe is used for many applications, including water lines, sewer lines, irrigation, and storm drainage. There are many different types and classes of PVC pipe, made for many different applications. There are many more similarities in PVC than there are differences, but it is important for engineers and architects that use these products to understand the differences. This 1-hour interactive online course is intended to shine some light on the use of products such as SDR 35, C 900 and Schedule 40 pipe. This course is not intended to be an endorsement of PVC for all applications but rather to provide the student with better information upon which to base a design decision. Some of the tables used in this course must be displayed using Microsoft Word. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial</b>	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental
<b>Rehabilitation of Water Distribution Systems: Current Technologies</b>	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced
<b>Rehabilitation of Water Distribution Systems: Designing Renewal Projects</b>	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the US. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods.	1	Advanced
<b>Rehabilitation of Water Distribution Systems: Selecting Rehab Methods</b>	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
Reinforced Concrete Tilt-Up Panels	The term tilt-up panel is almost self-descriptive. This method of construction has been utilized through history, but only relatively recently have the advantages become economically viable. A combination of labor savings, speed of construction, and good finish quality, has made tilt-up panels more competitive. The following course will explain the tilt-up panel method of construction, itemize some of the current advantages of this construction method, and give an example of the design of a typical warehouse type building constructed of tilt-up walls.	1	Intermediate
Reinforced Masonry Design	What is reinforced masonry? Reinforced masonry is often used for building foundations and exterior walls, for resistance to earthquake and wind loads, and where compressive resistance to loads is required. Where unreinforced masonry has some limited uses, reinforced masonry can be used in most building applications under most loading conditions. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This interactive online course will focus on reinforced masonry design and how the use of this design method is employed everyday for buildings, foundations, and retaining walls. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
Reliability Engineering Essentials	This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world.	1	Intermediate
Residential Green Building: Design, Construction, and Accreditation	Green Building is rapidly becoming mainstream, mostly due to increasing environmental concerns, a desire to develop healthier structures, and increasing regulation from the permitting authorities. This 4-hour interactive online course starts by debunking many green building myths and then moves into a comprehensive discussion of its elements. The course takes a close look at green building in relation to many aspects of design and construction including issues dealing with sites, landscaping, foundations, frames, exterior finishes, plumbing, appliances, insulation, ventilation, windows, finishes, and flooring. The course wraps up with information on testing, certification, and accreditation, including a look at the LEED program and the NAHB Green Home Certification Program. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
Residential Green Remodeling: Design, Construction, and Certification	This course will introduce residential construction professionals to green building and renovation strategies, practices, and materials. In addition to its positive environmental impacts, green building ultimately results in a healthier and a more affordable home for clients. If a program is implemented effectively, it's also good for the residential remodeler's financial bottom line. The green building and remodeling market continues to grow, providing great opportunities for building professionals to develop and expand their businesses. This course provides a comprehensive discussion of the unique aspects of green remodeling with a focus on building evaluation, deconstruction, handling of hazardous waste, materials recycling and reuse, energy conservation, indoor air quality, use of environmentally safe products, design principles, system planning and construction best practices. The course also provides an overview of green building certification programs, green building professional accreditation programs, and incentives available from government agencies and utilities. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
Retaining Wall Design - Part 1	This 2-hour online course is part 1 of a two part course for analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 involves the description of retaining walls, a review of the soil mechanics necessary to calculate the forces acting on the wall, and resisting the movement of this structure. Further, this course describes the procedure for evaluating the stability of the retaining wall. The body of this course is presented in a word document format which you must download. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Retaining Wall Design - Part 2	This 2-hour online course is part 2 of a two part series on analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 described the process of determining the stability of this type of structure, while this part is involved with determining the internal forces and stresses of the cantilever retaining structure and selecting sizes and spacing of steel reinforcing and dimensions of a reinforced concrete cantilever retaining wall. Appropriate sections and equations of the American Concrete Institute's ACI318 (latest edition) will be referenced in the design process. Due to the extensive amount of math used in this course, it is presented in a Word document format which must be downloaded by the student. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Riprap Design	This 3-hour interactive online course provides procedures for the design of riprap revetments to be used as channel bank protection and channel linings on larger streams and rivers (i.e., having design discharges generally greater than 50 cfs). Procedures are also presented for riprap protection at bridge piers and abutments. The emphasis in this course is on the design of rock riprap revetments. Other portions of the course cover the recognition of erosion potential, and erosion mechanisms, and riprap failure modes. It includes several design examples of use of the procedures. The course is based on current guidance from the Federal Highway Administration. It will be necessary to download the pdf file from the FHWA website to view some of the figures and charts referenced in this course, and to view the photographs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced

## Engineering (Continued)

Title	Description	Hours	Level
<b>Rivers vs. Lozeau - A Dave Gibson Public Lands - Related Case</b>	<p>This 2-hour online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for PUBLIC LANDS-RELATED parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6-hour course titled 'Dave Gibson's All Star Public Lands-Related Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Roofing - Flexible Membrane Edge Design</b>	<p>Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading and the most critical area for wind loading is the edge of the roofing system. This 2-hour interactive online course provides a design guide for edge systems used with low sloped flexible membrane roofing systems. Another RedVector.com course is available on materials used for flexible membrane roofing and additional courses are available on other design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Advanced
<b>Roofing - Flexible Membrane Wind Load Design</b>	<p>Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading. This 2-hour interactive online course provides a design guide for low sloped flexible membrane roofing systems. It also includes several design examples that go through the entire design process for wind loading. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Advanced
<b>Roofing Materials - Asphalt Shingles</b>	<p>One of the most commonly used materials available for roofs is asphalt shingles. This 2-hour interactive online course covers a variety of topics related to asphalt shingles, such as underlayment requirements, ventilation and potential problems with shingles. Asphalt shingles are very common on residential roofs in much of the United States and are also used on smaller commercial buildings. Because they are so common, proper use, specification and design of asphalt shingle roofs are often overlooked. This course will provide guidance for designers of new asphalt shingle roofs and some guidance on replacement requirements for existing roofs. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Roofing Materials - Concrete Tiles</b>	<p>Concrete tile is one of the most durable roofing materials available. This 2-hour interactive online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Roofing Materials - Flexible Membranes</b>	<p>Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. The materials used for membrane roofs include thermoset materials, thermoplastic materials and modified bitumen materials. This 3-hour interactive online course covers an introduction into these materials and products used with them, including fasteners, insulation materials, adhesives and fabrics. Additional RedVector.com courses are available on design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Intermediate
<b>Runoff Analysis using the SCS Method - Part 1</b>	<p>This 3-hour interactive online course presents the basics of the SCS Method of determining runoff, using Technical Release No. 55 (TR 55), Urban Hydrology for Small Watersheds. While the Soil Conservation Service (SCS) has changed their name to the Natural Resources Conservation Service (NRCS), this method is still commonly called the SCS Method, rather than the NRCS Method. The SCS Method is a very commonly used method to determine runoff from smaller drainage basins. The document was released in 1986 and, while it has not been updated to include the common use of personal computers, many of the techniques included are easily adaptable to spreadsheet programs. This course is the first of a two-part course series that provides all of the SCS Method included in TR 55. Part 1 covers the first four chapters of TR 55, which include the Introduction, Estimating Runoff, Time of Concentration and Travel Time and the Graphical Peak Discharge Method. Part 2 covers chapter 5 and 6, which include the Tabular Hydrograph Method and Storage Volume for Detention Basins. The SCS Method is a relatively straightforward method that can be applied in many cases. Unlike many hydrologic techniques, it is a method that produces results that can be duplicated by others without great difficulty. The text of the course is taken from TR 55. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Runoff Analysis using the SCS Method - Part 2</b>	This 2-hour interactive online course presents the basics of the SCS Method of determining runoff, using Technical Release No. 55 (TR 55), Urban Hydrology for Small Watersheds. While the Soil Conservation Service (SCS) has changed their name to the Natural Resources Conservation Service (NRCS), this method is still commonly called the SCS Method, rather than the NRCS Method. The SCS Method is a very commonly used method to determine runoff from smaller drainage basins. The document was released in 1986 and, while it has not been updated to include the common use of personal computers, many of the techniques included are easily adaptable to spreadsheet programs. This course is the second of a two-part course that provides all of the SCS Methods included in TR 55. Part 1 covers the first four chapters of TR 55, which include the Introduction, Estimating Runoff, Time of Concentration and Travel Time and the Graphical Peak Discharge Method. Part 2 covers chapters 5 and 6, which include the Tabular Hydrograph Method and Storage Volume for Detention Basins. The SCS Method is a relatively straightforward method that can be applied in many cases. Unlike many hydrologic techniques, it is a method that produces results that can be duplicated by others without great difficulty. A number of computer programs are available that use the SCS Method. However, use of these programs without an understanding of the assumptions and limitations of the method can result in substantial errors. The text of the course is taken from TR 55. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components equipment grounding	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice (RV-10744)</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations Safe working clearances Safety practices	2	Intermediate
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Seismic - Wood Diaphragm Design for Out of Plane Wall Anchorage</b>	This course will explain the design and detailing of subdiaphragms for a flexible roof system using ASCE 7-10 Section 12.11 Structural Walls and Their Anchorage. Many low rise buildings are constructed with heavy walls of masonry or concrete and light wood roofs or floors. During an earthquake the light roof framing must stabilize the heavy walls as those walls move out of plane. IBC 2012 and ASCE 7-10 require that the roofs and floors be designed to transfer the out of plane wall forces through the diaphragm using the subdiaphragm concept. This course will show you how to develop the demand on the diaphragm, calculate the capacity of the framing members and detail the members to achieve this load transfer.	1	Intermediate
<b>Seismic Diaphragm Demands</b>	This course will cover the development of the seismic diaphragm forces based on the IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.10. The demand on a diaphragm during a seismic event is not well understood. Using the Equivalent Lateral Force, this course will review the forces on the diaphragms and compare them to the story forces.	1	Intermediate
<b>Seismic Equivalent Lateral Force Base Shear</b>	This course will cover the development of the equivalent seismic force based on IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.8. The development of seismic forces using the Equivalent Lateral Force Procedure equation $V=C_s * W$ will be explained through the terms of Newton's 2nd Law. The course will define the forces generated during an earthquake and how those forces travel through the building to the ground.	1	Fundamental
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Septic System Design</b>	Septic is from the Greek septikos, meaning to putrefy. Most commonly this word is used to describe a system for sewage treatment and disposal or septic systems. Sewage treatment uses anaerobic decomposition to break down organic matter. When sewage or waste is generated it can be processed in a municipal water treatment plant or several types of land treatment systems. Even with the urban or suburban sprawl that has occurred in the recent decades, some residential and commercial properties are still located in areas that are not on the municipal sewer grid. These places tend to use onsite sanitary sewer treatment for its waste. This 1-hour interactive online course places its focus on treating sewage with an onsite septic system. An example problem is given to provide the student with more direction in septic system design. The concentration of this course is designing on-site septic systems using a septic tank and infiltrator trenches in the leachfields. Items discussed include: sizing septic tanks, percolation tests, sizing infiltration chamber, the environmental health effects of sewage and much more. By the time you reach the end of this course, you should be armed with all the knowledge and skills to design basic on-site septic systems and to further your study in this important field.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Site Planning and Design</b>	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Site Utility Design: Commercial Buildings</b>	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Small Scale and Micro Scale Wind Applications</b>	Exactly how can we harness the power in wind? Do you need a giant wind turbine? This interactive online course provides an overview of wind technology at a much smaller scale. Topics covered include small scale and micro scale wind technologies, including: applications, estimating wind turbine production, and siting considerations. We will also detail the process for installing small wind turbines and small wind system components and explore the newest research focused on micro (nano) wind technology.	2	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>SMART Instrumentation in Biological and Chemical Treatment</b>	What is SMART instrumentation? The definition and implementation of SMART Instrumentation has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation.	1	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Lawful Hiring Practices</b>	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals Generate leads Learn about other companies and their hierarchies Leverage powerful tools to find and reach the right people Tap into the knowledge of their network, and Discover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)</b>	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
<b>Soils and Foundations: The Low Down on Dirt</b>	Soils issues and ineffective water management methods create serious problems with foundation systems and structures. Understanding the core soil problems faced in the construction industry and methods to overcome them allow you to avoid the associated issues. This interactive online course will teach you about some of the most common issues found with soils and how to overcome them. You will also learn about ICC codes that govern site inspections. Additionally, you will learn about geotech reports and best practices when assessing soil conditions.	2	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Steam System Basics &amp; Performance Improvements</b>	There are three principal forms of energy used in industrial processes: electricity, direct-fired heat, and steam. Steam provides process heating, pressure control, mechanical drive, and component separation, and, is a source of water for many process reactions. Steam has many performance advantages that make it an indispensable means of delivering energy. This 2-hour interactive online course describes the basic steam system components, outlines opportunities for energy and performance improvements, and discusses the benefits of a systems approach in identifying and implementing these improvement opportunities. This course is based on the Department of Energy's Improving Steam System Performance: A Sourcebook for Industry. The first section of the course describes steam systems using four basic parts: generation, distribution, end use, and recovery. It is recommended for users unfamiliar with the basics of steam systems, or for users seeking a refresher, a brief discussion of the terms, relationships, and important system design considerations is provided. The second section discusses important factors that should be considered when industrial facilities seek to improve steam system performance and to lower operating costs. This section also provides an overview of the financial considerations related to steam system improvements. Additionally, this section discusses several resources and tools developed through the U. S. Department of Energy's (DOE) Best Practices Steam activities to identify and assess steam system improvement opportunities. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Steam Turbine Power</b>	Do you know how the steam turbine is such a vast improvement over the reciprocating steam engine? This 1-hour interactive, online course describes the basic principles of steam turbines. Vector diagrams are used to explain the dynamics involved in impulse and reaction turbine stages. Several pictorial presentations are included, which clearly illustrate the various stages and turbine configurations. Also, classifications by stage design, steam supply and exhaust conditions, casing and shaft arrangement, direction of steam flow, and numbers of exhaust stages are presented and described.	1	Intermediate
<b>Stefanic et al - A Dave Gibson Metes and Bounds Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for METES AND BOUNDS parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Metes and Bounds Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Stormwater Discharges from Construction Activities</b>	Stormwater discharge from construction activities can have a significant impact on the water quality of rivers, lakes, and coastal waters with pollutants like sediment, debris, and chemicals. Stormwater discharges from construction activities that impact one or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. This two-hour course discusses the importance of stormwater controls on construction sites as well as a detailed look at specific construction-related pollutants. This course also provides participants with an overview of the new NPDES 2012 Construction General Permit (CGP), which is an update to 2008 CGP. In order to implement the new Effluent Limitations Guidelines and New Source Performance Standards for Construction and Development point sources (C&D rule), construction site operators must meet new restrictions on erosion and sediment control, pollution prevention, and stabilization.	2	Advanced
<b>Stormwater Harvesting: A Green Concept</b>	Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.	3	Intermediate
<b>Stormwater Management: Low Impact Development (LID)</b>	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	3	Intermediate
<b>Structural Design Philosophies ASD &amp; LRFD</b>	Structural engineering design philosophy is based on determining the demand on an element and designing that element with the capacity to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	1	Intermediate
<b>Structural Insulated Panels (SIPs)</b>	Structural Insulated Panels (SIPs) are a new sustainable structural panelized building material that can be used for roofs, floors, and wall panels. This course will examine various uses and structural limitations on the materials. An exploration of code requirements and constructibility will be included. Design examples will illustrate cost effective approaches to incorporating this new sustainable material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Intermediate



## Engineering (Continued)

Title	Description	Hours	Level
<b>Structural Steel - An Introduction</b>	Are you faced with a project that requires an understanding of structural steel? Do you know the standard steel shapes and how they are connected to erect a building? What is that ASTM specification on the Mill Cert and how does it apply to steel selection? When should you choose structural steel over other materials? This course introduces the student to the basic fundamentals of structural steel.	1	Fundamental
<b>Surge Protection</b>	Power surges are a serious ongoing problem causing major damage in the U.S. including losses of data. The solution is surge protection. You can be a successful provider of that solution. First, you need to know what a surge is, what causes it, and the best technology to protect against it. This webcast will teach you about surges so that you can understand what you are dealing with. This course will also introduce you to the types of protection available as well as installation recommendations.	2	Intermediate
<b>Surveying Essentials</b>	Where was that property line? Do you see the marker? Surveying is used to produce precise descriptions, such as surveys and maps, of surface features of the Earth. Surveying essentials can be useful for engineers, architects, and contractors. This interactive online course covers the basics of surveying and basic principles used in land surveying, establishment of property lines, positioning of buildings, roads, pipelines, etc. Surveying terminology as well as routine calculations and techniques for making field notes are covered in this course. This course is primarily for those not acquainted with surveying and is intended to provide you with an awareness of surveying essentials.	1	Fundamental
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
<b>Sustainable Design: Eco-efficiency of Roofing Insulation Systems</b>	This 1-hour interactive online course explores several popular roofing insulation systems - Expanded polystyrene (EPS), Polyisocyanurate (Polyiso), Extruded polystyrene (XPS), and Sprayed Polyurethane Foam (SPF) - and discusses the influences each one has on sustainable design. It is divided into the following sections: Sustainable Development Insulation Systems Technical Aspects Environmental and Economic Aspects Appendix The course begins with an introduction to sustainable development, compares different plastic insulation systems, then follows up with some technical points on each system. Lastly, eco-efficiency analysis is explained and the environmental and economic aspects of each system are discussed.	1	Fundamental
<b>Sustainable Sites Initiative and the SITES® Rating System</b>	How are you planning on the development of your next site? Have you planned on how you can maintain a healthy ecosystem on your site? This interactive online course introduces course participants to the Sustainable Sites Initiative (SITES®), which is an interdisciplinary effort and framework for the SITES® Rating System based on the concept of ecosystem services, or the benefits that people enjoy from healthy natural systems promoting sustainable land development and management practices. This course includes a discussion of the history and participating entities of the SITES effort. This course will also provide an in-depth study of SITES® Rating System national guidelines and performance benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection for sustainable land design, construction and maintenance practices. This course will conclude with case studies of certified sites fostering resiliency, ecosystem services, human health, materials, soils/vegetation, and water.	2	Fundamental
<b>Sustainable Solutions: Air Pollution</b>	Welcome to the course Sustainable Solutions: Air Pollution. In this course we will explore the relationship between air pollution and site development. Major pollutant sources and their impacts will be discussed along with strategies for reducing embodied energy and creating favorable microclimates that benefit the site and surrounding area. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	2	Fundamental
<b>Sustainable Solutions: Human Health and Well-Being</b>	This course emphasizes the importance of using site design to increase physical activity within a community and provides strategies for doing so. It addresses the subject of maintaining positive mental health through the integration of natural landscapes. Strategies for implementing opportunities for social interaction among adults and spontaneous play among children are also discussed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Invasive Species</b>	A foundational principle of an ecological education is the notion of a species' native status. The idea has to do with where a species evolved and was able to establish without the aid of humans. At the other end of the spectrum, an invasive species is defined as one that is nonnative to a particular ecosystem and whose introduction into that system causes or is likely to cause economic or environmental harm or harm to human health. In this course, we will learn about explore the characteristics of an invasive species and cover methods of how to control and prevent invasive species, such as encouraging high-diversity plant communities, limiting habitat fragmentation, maintaining a healthy disturbance, minimizing resource input, and utilizing an Integrated Pest Management (IPM) plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Loss of Biodiversity</b>	Biodiversity refers to the richness and distribution of species living in a given area. This course will deal with strategies to effectively mitigate negative impacts to habitat and to restore damaged or degraded natural systems on-site. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Urban Flooding and Water Pollution</b>	As the U.S. was discovered and populated, people located their families and businesses near water. Living near water brings many opportunities and some inconveniences. In this course we will review some basics about flooding and water pollution as well as explore some specifics about these catastrophes and the sustainable solutions we can employ to prevent them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Water Shortages</b>	Over the next forty years, the global population is expected to increase from 6 billion to an estimated 9 billion, yet the world's water supply is constant. Only 3 percent of the global water supply is fresh; the majority of it is locked in ice or stored deep in the earth, making its extraction very expensive. The remaining 97 percent is found in the oceans and is too salty for human consumption, irrigation, and industrial uses. Water from the oceans can be processed; however, desalination is an energy-intensive practice. In this course we will explore site strategies for reducing water waste and recharging groundwater supplies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Urban Design: High Speed Rail</b>	High Speed Rail is an increasingly popular means of rapid passenger transit, capable of speeds up to 250 miles per hour. As demand for more efficient, eco-friendly means of mass transit increases, so does the appeal of high speed rail as a more prominent means of travel in the United States. This 1-hour webcast discusses key concepts of High Speed Rail and compares it with other popular modes of transportation.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Swimming Pools: Coordination of Architects &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors &amp; Building Trade Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Engineers &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Introduction to Aquatic Design &amp; Construction</b>	Most architects, landscape architects, civil and mechanical engineers, construction managers, general contractors and their clients only have infrequent encounters with projects containing swimming pools or other aquatic features. College undergraduate and graduate level studies rarely address the subject of swimming pools at all. As a result, most designers and builders have never had to develop the necessary resources in-house for design and construction, and have sometimes relied upon less than reliable sources of information during their project programming. This 2-hour online course will provide the design team members with an overview of the specialized language of pools, and an improved understanding of the problems encountered in aquatic design. Later courses in this series will develop design criteria, coordination issues, and construction methods. This initial course is intended to expand the knowledge-base for non-aquatic designers and improve their communications with aquatic specialists who only occasionally join the rest of the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Swimming Pools: Mechanical and Hydraulic System Design</b>	This 2-hour online course is intended to provide the engineer with basic understanding of hydraulic systems design for swimming pools. Our design process will be cumulative, combining the physical elements of pool design, the regulations governing swimming pools, and engineering criteria all into one process. As they say, you don't want to know how sausage is made! While the engineer may recognize the simple formulae used, he or she may not be familiar with how swimming pools work in the first place. It is the expressed objective of this course to remedy that lack of information and put all that stuff learned in engineering school to work designing pools that are not only fun but safe. Prerequisite Prior to taking this course students should have a passable knowledge of basic and applied fluid mechanics at the college level and/or extensive field experience in the installation and operation of closed-loop pumping systems. The course is not a masters thesis in mechanics, dynamics or thermodynamics. It is a straight forward application of basic fluid mechanics to an everyday problem. If you are looking for superior academic analysis, formula derivation and integral calculus, you're living out a recurring nightmare of mine and are in the wrong classroom! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>TDLR TEST Basic Electricity I</b>	This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated.	2	Intermediate
<b>Texas Land Surveyors: Texas Administrative Code Rules, Title 22, Part 29</b>	Land Surveyors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Land Surveyors, discussing Title 22, Part 29 of the Texas Administrative Code (Act), administered by the Texas Department of Licensing and Regulation. Land Surveyors should not only include these standards in everyday actions, but actively strive to exceed them whenever possible.	4	Intermediate
<b>The Importance of the International Building Code (IBC) in the Design and Construction of Safe Buildings</b>	This three-hour webcast gives participants an introduction to the International Building Code (IBC), which is a model building code developed by the International Code Council (ICC). The IBC Codes provide minimum safeguards for people with regard to building safety. Focus will be on the importance of the code in regard to fire prevention, ingress/egress, and structural stability. Discussions will also include additional codes (e.g., International Plumbing Code) that when referenced by the IBC are adopted, as well. This webcast distills the IBC down to relevant code sections, chapters, and working examples that illustrate fundamental code concepts.	3	Fundamental
<b>The Petroleum Industry - Crude Oil Classification and Benchmarks</b>	Fluctuations in the price of oil triggered the debate regarding the level of world oil reserves, and the capacity to meet future energy demand has taken on a new impetus. This has led to reinvestigation of the methods of crude oil classification and classification of reserves. For the purpose of the course, we'll define petroleum as a naturally occurring mixture of hydrocarbons, generally in a liquid state (that may also include compounds of sulfur, nitrogen, oxygen, metals, and other elements) which occurs in sedimentary rock deposits throughout the world. However, the definition of petroleum-associated materials has been varied, unsystematic, diverse, and often archaic. It is only recently that some attempt has been made to define these materials in a meaningful manner. Thus, it is not surprising that attempts to classify petroleum have also evolved. In this course we will review these methods and present them to you for further consideration in terms of pricing strategies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>The Petroleum Industry - Exploration, Recovery, and Transportation</b>	This course will give a non-technical explanation of the technical aspects of oil exploration and recovery; but the information in this course is intended for the technical and non-technical person alike. We'll explore the different operations for exploration and recovery of crude oil and other sources of energy, such as tar sand. We'll also examine the different methods of transportation used to transport varying amounts of oil. This course will also touch upon how the exploration, recovery, and transportation oil affect oil economics, including prices, supply, and demand.	2	Fundamental
<b>The Petroleum Industry - History, Terminology, and Culture</b>	When you think of crude oil, the first thing that probably comes to your mind is the black liquid that is pumped out of a reservoir. Or you might be thinking of the liquid you pump into your car, which you notice is a bit more expensive than it was a decade or even a week ago. The definition of crude oil is confusing and variable and has been made even more confusing by the introduction of other terms that add little, if anything to petroleum definitions and terminology. Actually, until the mid-1800s, this vast untapped wealth lay mostly hidden below the surface of the earth. Some oil naturally seeped to the earth's surface and formed shallow pools that were used as a source of medicinal liquids, illuminating oil, and, after evaporation of the volatile components, as a caulking for boats and a building mastic. For centuries, demand was limited but better refining techniques and surging demand for kerosene and lubricants in the late 19th century changed this. Today, crude oil is the major source of fuel used by people today. In this course, we will go back to petroleum's verbal roots, through its initial uses to its role in society today and the major oil companies that distribute it.	2	Fundamental
<b>The Petroleum Industry - Oil Supply</b>	In this course we will cover conventional and non-conventional oil sources, especially the impact of heavy oil and tar sand bitumen. We will also cover past and present technological, economic, and geopolitical factors of oil. These will be viewed in light of the expectation of peak oil, which is the peaking and subsequent decline of the production rate of oil, and the knowledge that oil is a limited resource.	1	Fundamental
<b>The Petroleum Industry - Origins and Occurrence of Oil</b>	In this course we will discuss the formation of oil and review the theories of its origin. You will get comprehensive information about oil reservoirs including their structure, oil accumulation, as well as distribution, migration and transformation of reservoir fluids. We will cover classification and evaluation of reservoirs and estimation of fuel reserves. We will also review fuel reserves focusing on quality, quantity, patterns, and benefits. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>The Petroleum Industry - The Crude Oil Market</b>	Petroleum economics is the field that studies human utilization of petroleum resources and the consequences of that utilization. In the simplest scientific terminology, petroleum use allows the production of energy. In this course we will discuss the factors and pricing strategies that determine oil prices, the transportation of oil from the producer to the consumer, and the structure of the crude oil market and global consumption of oil.	2	Fundamental
<b>The Petroleum Industry - The Future</b>	Crude oil is the major source of fuel used in the modern world, and the crude oil sector is the largest and most dominant economic sector of business in the United States. The United States has come not only to rely on crude oil but the nation is also addicted to crude oil. Cures for this addiction are possible, such as a reduction in the amount of oil required for daily life, but will take time and are unlikely to succeed in the near term. This course discusses the future of the petroleum industry and illustrates how the increasing demand for energy affects both crude oil resources and production of alternative fuels.	1	Fundamental
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>The Sustainable Site Design Process</b>	Sustainable site design is a creative and analytical process of information gathering, investigation, and composition that utilizes art and science to connect natural and built systems in a mutually beneficial way. Design outcomes are not inherently sustainable and should not be assumed just because a site is made up of vegetation, soil, and other natural components. Like all successful aspects of a project, sustainability must be intentional and nurtured. By infusing sustainability into all aspects of the design, it becomes an interwoven and inseparable component that is vital to the project's overall success. Traditional design processes and team interactions do not always support sustainable outcomes. To help overcome this issue, this course will cover an integrated design process designers can use which encourages the collaborative efforts of a project team and the utilization of the technical expertise of other professions to broaden the team's awareness of the range of possible design solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>The Ultimate Project Manager, Chapter 01: Today's Project Manager</b>	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 02: Marketing And Proposals</b>	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 03: The Contract Agreement</b>	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 04: The Project Management Plan</b>	The purpose of this course is to provide you with the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 05: The Project Schedule</b>	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 06: The Project Budget</b>	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 07: Leading The Project Team</b>	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
<b>The Ultimate Project Manager, Chapter 08: Managing Client Relationships</b>	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 09: Developing Effective Communications</b>	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 10: The Project Startup</b>	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
The Ultimate Project Manager, Chapter 14: Managing Project Quality	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
The Ultimate Project Manager, Chapter 15: Managing Project Risks	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
The Ultimate Project Manager, Chapter 16: Project Financial Management	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
The Ultimate Project Manager, Chapter 17: Project Management And Design Technology	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
The Ultimate Project Manager, Chapter 19: Project Closeout	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate
The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>The Value of Concentrating Solar Power and Thermal Energy Storage</b>	This course examines the value of concentrating solar power (CSP) and thermal energy storage (TES) in four regions in the southwestern United States. The analysis shows that TES can increase the value of CSP by allowing more thermal energy from a CSP plant's solar field to be used, by allowing a CSP plant to accommodate a larger solar field, and by allowing CSP generation to be shifted to hours with higher energy prices. We will look at the sensitivity of CSP value to a number of factors, including the optimization period, price and solar forecasting, ancillary service sales, capacity value and dry cooling of the CSP plant. We will also discuss the value of CSP plants and TES net of capital costs.	1	Intermediate
<b>The WELL Building Standard</b>	How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied.	3	Fundamental
<b>Traffic Control Measures</b>	Traffic control uses design and operational strategies to influence the movement, flow, and speed of traffic. You can apply the information and methods you learn in this interactive course to develop new and modify existing transportation infrastructure. The expertise you acquire can add benefit and reduce potential danger in all your projects.	2	Fundamental
<b>Transformers I - Electrical Characteristics</b>	This 1-hour interactive online course is the first part of a series of courses on electric distribution transformers. In this part we will look at the basic electrical characteristics of transformers including how magnetism is used to create a voltage within the transformer. Characteristics such as how a transformer works, how the primary and secondary voltages and currents are related, how to calculate the transformer's regulation and efficiency, as well as the factors contributing to losses within the transformer are reviewed. Diagrams are presented that show the basic construction of a distribution transformer and the course includes a description of the common designs in use today such as shell-form designs, core-form designs, and the various three-phase designs. The course includes a multiple-choice test at the end.	1	Advanced
<b>Transformers II - Standards</b>	This 2-hour interactive online course is the second in a series of courses on electric distribution transformers. In this course we will review the various methods to classify transformers including cooling methods, protection schemes, and installation types. This course discusses transformer types, including oil filled and dry types, as well as the different types of transformer oils that are used. Both conventional and CSP transformers are reviewed. Standards, such as the insulation standard, short-circuit withstand, voltage rating identification, and terminal markings, are reviewed. Finally, transformer loading issues and methods to evaluate the cost of operating distribution transformers are discussed. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transformers III - Connections</b>	This 2-hour interactive online course is the third in a series of courses on electric distribution transformers. In this course, we review the application of single-phase transformers in both single-phase installations and three-phase installations. Other factors such as the available fault current at the secondary of a transformer are reviewed as well as how ferroresonance impacts the operation of distribution transformers. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transmission and Distribution: Distribution Line Installation and Removal</b>	Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal. You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment.	1	Intermediate
<b>Transmission and Distribution: Distribution Line Replacement</b>	The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors.	1	Intermediate
<b>Transmission and Distribution: Focus on Distribution</b>	The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform.	1	Intermediate
<b>Transmission and Distribution: Framing Specifications and Basic Construction Diagrams</b>	The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Transmission and Distribution: Introduction to Transmission and Distribution Systems</b>	The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer.	1	Intermediate
<b>Transmission and Distribution: Overhead Distribution Systems</b>	The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed.	1	Intermediate
<b>Transmission and Distribution: Pad-Mounted Transformers and Switchgear</b>	The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer.	1	Intermediate
<b>Transmission and Distribution: Power Quality</b>	This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems.	0.75	Intermediate
<b>Transmission and Distribution: Service Installation</b>	Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer.	1	Intermediate
<b>Transmission and Distribution: Substations and Switchyards</b>	Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents.	1	Intermediate
<b>Transmission and Distribution: Transmission Line Installation</b>	The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworker's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators.	1	Intermediate
<b>Transmission and Distribution: Transmission Line Safety</b>	This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction.	1	Intermediate
<b>Transmission and Distribution: Underground Residential Distribution Systems</b>	Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers. The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently.	1	Intermediate
<b>Transmission and Distribution: Using Line Test Equipment</b>	The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading.	1	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems	Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities.	1	Intermediate
Transmission and Distribution: Working on Distribution Poles	The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work. This interactive on-line course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends.	1	Intermediate
Transportation Engineering: Highway Capacity	Highway accidents result in thousands of deaths a year. Knowing how highway capacity analysis is used in the design of safe and efficient roadway facilities is essential to the health safety and welfare of the general population. This interactive online course will teach you about the fundamental concepts of highway capacity analysis. You will learn about transportation system elements, types of roadway facilities, design vehicles, the concept of level-of-service, traffic volume parameters, and speed parameters and how they are relevant in analyzing the capacity of roadway facilities.	2	Fundamental
Transportation Engineering: Introduction to Transportation, Planning, and Funding	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental
Transportation Engineering: Mass Transportation	Mass transportation (or public transportation) is any form or shared-passenger transportation service available for use by the general public. The types (or modes) of mass transportation include airline service, bus (commonly referred to as transit or transit service in the United States), paratransit (van service), light rail (also known as tram), commuter rail, heavy rail, ferries, as well as other modes such as motorized tricycles (often referred to as auto rickshaws) that are common and widely used in mostly developing and emerging economies. New and innovative modes of mass transportation include Maglev trains. The focus of this interactive online course will be on modes of mass transportation and mass transportation systems common within the United States, in particular transit, paratransit, light rail, commuter rail, and heavy rail.	2	Intermediate
Transportation Engineering: Traffic Flow Theory	This interactive online course presents the fundamentals of traffic flow and queueing theory which form the basis of all traffic analysis. This course presents the relationships among traffic flow, traffic density, and speed which are the primary elements of a traffic stream. These relationships guide engineers in planning, designing, and assessing traffic engineering improvements on highway systems and transportation networks. This course presents analytical methods that are applied in the design of new facilities, and also in evaluating impacts of modifications to existing transportation networks. Specific applications of the fundamental principles presented in this course include analyzing turn lane lengths, evaluating freeway ramp operations, estimating traffic flows at intersections, determining traffic flows at toll booths, and assessing the impacts of bottlenecks and traffic incidents on highway performance. This course presents statistical methods and how they are applied to analyze and manipulate traffic flow data, as well as how they are used to identify deficiencies in transportation systems as well as how they are used to assess traffic operations.	2	Fundamental
Trenchless Methods: An Introduction	There is a tremendous need to rehabilitate pipes, especially sewer and water lines. In the U.S. alone, there are 1.2 million miles of sewer pipe and approximately 880,000 miles of water distribution pipes. In both cases, the operable life of the infrastructure is 50 to 100 years. The majority of these pipes were laid in the 1940's, after World War II, and most are 50 to 125 years old. Additionally, on-going maintenance is necessary to protect against pipe corrosion, root intrusion, structural failure and other problems. Trenchless technology includes a large family of methods utilized for installing and rehabilitating underground utility systems with minimal surface disruption and destruction resulting from excavation. This 1-hour online course presents an introduction to the most common types of trenchless technology used in the U.S. and provides a real-life example to help you determine the correct technology for the given project. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Understanding Concrete's Environmental Advantage	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental



## Engineering (Continued)

Title	Description	Hours	Level
<b>Understanding Construction Claims</b>	This 2-hour interactive online course provides a basic overview of the five different types of construction claims that a contractor might have against an owner: Delay, Changed Work, Labor Productivity Loss, Acceleration, and Termination. It defines each type of claim and the subcategories within each, as well as defining the crucial concepts associated with each. It also provides a basic introduction to the various methods for calculating damages related to each type of claim, emphasizing the importance of the project schedule as an evaluation and analysis tool. The course material is supplemented with summaries of actual cases to illustrate how courts and boards rule on the different types of construction claims. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Understanding Fire Sprinkler Drawings and Calculations</b>	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
<b>Understanding the Energy Independence and Security Act</b>	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - StormWater Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
<b>Uninterruptible Power Supply (UPS) System Efficiency</b>	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Unreinforced Masonry Design</b>	How is unreinforced masonry used in construction? This interactive online course will focus on unreinforced masonry design and how the use of this design method is employed every day for buildings, foundations, and interior partitions. Unreinforced masonry is often used for building foundations and exterior walls, for fire separation walls on building interiors and used where compressive resistance to loads is required. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
<b>Urban Drainage - Design of Storm Water Detention and Retention Facilities</b>	This course will cover the information presented in Chapter 8 of the Hydraulic Engineering Circular by examining the procedures for the design of storm water detention and retention facilities in conjunction with highway design. This course provides a comprehensive and practical guide for the design of storm drainage systems associated with transportation facilities. Design guidance is provided for storm drainage systems which collect, convey, and discharge storm water flowing within and along the highway right-of-way. Methods and procedures are given for the hydraulic design of storm drainage systems.	2	Advanced
<b>Urban Sprawl Laws</b>	The social, environmental, and economic state of our communities, as well as the health of our population, is affected by our urban environment. Historically, the central objective of planning laws and land use regulations was to safeguard negative consequences associated with the built environment. Concern about rapidly developing urban regions has prompted state legislatures to pass planning laws to manage urban development. This interactive online course will focus on traditional growth management regulations and development restrictions employed in the local, regional, and state policy-making arenas. This course will also discuss a new approach heralded by California in Senate Bill 375 that focuses on regulating air quality standards through land development patterns. The types and functions of both traditional and new planning reform laws are the focus of this course.	2	Fundamental
<b>Use of Steel in Design &amp; Construction</b>	This 1-hour interactive online course discusses the use of steel in design and construction, with the primary focus of the design segment relating to design of buildings, and not entailing design of the myriad of other things in modern society that are made from steel. We will start with a look at the methods of manufacturing various types of steel. The resultant physical characteristics of different types of steel will be examined to understand those applications where the use of different steel is recommended. Techniques for proper use and erection of steel in buildings will be discussed, in conjunction with design considerations. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Virginia 2017 NEC 3 Hour CE Program #1</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(l), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #2</b>		3	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
Virginia 2017 NEC 3 Hour CE Program #3	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #4	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate
Walkable Communities	You can be a leader in the growing trend of communities that support more social interaction, physical fitness, and diminished crime and social problems. You can develop economically and naturally sustainable urban environments that lead to whole, happy, healthy lives for the people who live in them. This webcast gives you the information and tools you'll need to set and reach those goals. You'll learn preferred choices of transportation, street design, and guidelines for developing walkable (non-motorized) communities.	1	Intermediate
Wastewater Treatment and Reclamation: Asset or Liability	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
Water Industry Hydraulics	This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application.	1	Intermediate
Water Well Design	Extracting groundwater for use as public water supply, irrigation, or industrial supply presents a challenge to Engineers, Geologists, and Well Drilling Contractors. Water wells must be designed to fit existing natural conditions. Factors including aquifer parameters (location, depth, rock types, and water yield capacity), geology and water quality, are unique to every location. The professional engineer, geologist, and well driller need to be informed of these factors to complete a successful water well construction project. This two hour interactive online course will introduce you to the necessary steps in a water well design project. Proceeding with researching of local groundwater conditions to obtaining information necessary to locate and plan a well, this course presents techniques for designing a water well. You will learn valuable skills in the phases necessary to implement a well construction project. This course includes a multiple choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
Water-Based Fire Suppression Systems	With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost \$12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project.	1	Fundamental
Wetland Delineation 1: The Basics	This 2-hour interactive online course describes technical guidelines and methods using a multi-parametric approach to identify and delineate wetlands for the purposes of Section 404 of the Clean Water Act. This course is based upon the Corps of Engineers Wetland Delineation Manual published in January 1987. Modifications and clarifications have been made to the text in accordance with regulations promulgated since its original release. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Wetland Delineation 2: Methodology</b>	This 4-hour interactive online course is a continuation of the US Army Corps of Engineers Wetland Delineation Manual-based, 'Wetland Delineation 1: The Basics' which is a prerequisite for this course. This course begins with material covered in Part IV of the manual. Part IV contains sections on preliminary data gathering, method selection, routine determination procedures, comprehensive determination procedures, methods for determinations in atypical situations, and guidance for wetland determinations in natural situations where the three-parameter approach may not always apply. There will be a multiple-choice quiz at the end of each scenario. The student will also need Adobe Acrobat to download the reference material included in this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
<b>Wind Design Using ASCE 7-10</b>	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
<b>Wind Design Using ASCE 7-16</b>	Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard.	2	Intermediate
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 2: Effective Design &amp; Development</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Wood Design Using the 2012 Wood Frame Construction Manual</b>	Knowing the correct wind speed for the area in which you are building a wood frame structure is crucial to the safety of the building's inhabitants. This interactive online course will describe how to use the 2012 version of the American Wood Council's Wood Frame Construction Manual (WFCM). This version incorporates the use of wind speed maps from ASCE 7-10 and the design of both vertical and lateral load paths using the WFCM. There are many nuances to the correct use of this manual and many of these will be covered to help the practitioner correctly use this document that is referenced in the International Building and Residential Codes.	3	Intermediate

## Engineering (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction work sites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

## Engineering (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of work-places in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental



## Construction & Trades

Title	Description	Hours	Level
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Residential Code (IRC) Update</b>	It is important to have an up-to-date residential construction code addressing the design and construction of one- and two-family dwellings and townhouses to protect the health and safety of the public as well as provide affordable housing. There have been key changes made to the International Residential Code® (IRC®) since the 2009 edition. This course will identify important changes in the IRC from 2009 to 2012 edition. Participants will be presented with those changes that will most impact their use of the code when they adopt the 2012 IRC. The learner will receive an overview of the most important code changes. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Energy Conservation Code - Commercial Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for commercial buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of commercial building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in commercial building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Energy Conservation Code - Residential Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for residential buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of residential building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in residential building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
2015 International Fire Code Essentials – Hazardous Materials	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Site and Building Services	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Special Processes and Building Uses	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Fire Code®: Significant Changes	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
2015 International Residential Code (IRC): Significant Changes	This course reviews and analyzes selected significant changes from Chapters 1-4 of the 2015 International Residential Code (IRC). It assists building officials, plans examiners, inspectors and design professionals in identifying the specific code changes in Chapters 1-4 that have occurred and understanding the reason behind the changes. This course uses the Significant Changes to the International Residential Code, 2015 Edition. Topics include changes to accessory structure scoping, guard height, wind speed and exposure category determination, discussion of a new standard for sunrooms, new tables for minimum footing size, clarification of townhouse separation, emergency escape and rescue openings, stairway illumination and fire protection of floors, and a new requirement for a written statement of the reason for disapproval of an alternate material or method. Developed in Partnership with the International Code Council.	3	Intermediate
2015 International Residential Code® Essentials – Code Administration and Site Development	Did you know that the International Residential Code® (IRC) is a comprehensive, stand-alone residential code that establishes minimum regulations for the construction of one- and two-family dwellings and townhouses up to three stories in height, including provisions for fire and life safety, structural design, energy conservation and mechanical, fuel-gas, plumbing and electrical systems? These codes serve primarily to protect the safety and welfare of the building occupants and the public. In addition to providing a better understanding of the code provisions and their development, the additional content of this course is organized to correspond to the order of construction, beginning with sitework. Structural topics include conventional footings and foundations (including the fundamentals of soil capacity). Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Health and Safety	The health, safety, and welfare of the dwelling occupants is of primary concern to anyone involved in the design, construction, or inspection of residential buildings. The International Residential Code® (IRC) sets minimum requirements for the most commonly encountered building practices. In this interactive, online course you will explore such topics as a safe means of exiting the building and protection from falls and from the hazards associated with breaking glass. The code also sets minimum room dimensions to support a healthy living environment. Other requirements in the code address fire safety and air supply and support concerns for chimneys and fireplaces. Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Protection, Utilities, Conservation, and Hazards	Protecting the public is an important part of your job. As part of its purpose statement to protect the health and general welfare of the public, the International Residential Code® (IRC) sets minimum requirements for durable interior and exterior finishes, as well as for providing weather protection. Permanently installed equipment and systems that control environmental conditions of a dwelling are significant in what you plan for and do. Part of this course will focus on common heating, ventilating, and air conditioning (HVAC) systems, gas-fired appliances and gas piping systems. The IRC also covers plumbing system design and installations typical of dwelling construction, as well as focusing on commonly encountered electrical installations for services, branch circuits, devices and fixtures in IRC-regulated buildings. Also addressed in this interactive, online course are the prescriptive methods of the IRC for effective use and conservation of energy through proper design and construction of dwellings and information on structural and environmental hazards often associated with dwelling and accessory building construction. Developed in partnership with the International Code Council®.	2	Fundamental



## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>2015 International Residential Code® Essentials - Structural</b>	When following conventional construction of residential buildings, protecting the safety and welfare of the building occupants and the public is a primary concern. But as a professional, you don't want to feel backed into a corner by standards. The 2015 International Residential Code® provides comprehensive, easy to use standards that afford the greatest design flexibility in recognizing other methods and materials of construction. This interactive, online course explains the difference between prescriptive and performance requirements. Prescriptive structural design requirements to resist the forces of wind, earthquake and snow are described and illustrated in an easy-to-understand way. Structural topics include conventional wood floor, wall and roof framing, and engineered wood products. Developed in partnership with the International Code Council®.	1	Fundamental
<b>2017 NEC Changes: Communications Systems</b>	Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables.	1	Intermediate
<b>2017 NEC Changes: Special Equipment</b>	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate
<b>2017 NEC Changes: A New Process and Five New Articles</b>	The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids.	1	Intermediate
<b>2017 NEC Changes: Appliances and Equipment</b>	Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners.	1	Intermediate
<b>2017 NEC Changes: Branch Circuit, Feeder and Services</b>	Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	2	Intermediate
<b>2017 NEC Changes: Conductors and Wiring Methods</b>	Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT, 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays).	1	Intermediate
<b>2017 NEC Changes: Enclosures and Boxes</b>	Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2017 NEC Changes: Hazardous Locations</b>	Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	1	Intermediate
<b>2017 NEC Changes: Receptacles and Switches</b>	How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles.	1	Intermediate
<b>2017 NEC Changes: Special Occupancies</b>	The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	1	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)</b>	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)</b>	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced
<b>2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy</b>	This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	1	Intermediate
<b>2020 NEC® Changes: Branch Circuit GFCI Protection</b>	Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210.	1	Intermediate
<b>2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures</b>	This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	1	Intermediate
<b>2020 NEC® Changes: Devices, Lighting, and Gear</b>	This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	1	Intermediate
<b>2020 NEC® Changes: Equipment for General Use</b>	This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries.	1	Intermediate
<b>2020 NEC® Changes: Focus on Wiring Methods</b>	This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings.	1	Intermediate
<b>2020 NEC® Changes: General Requirements</b>	The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space.	1	Intermediate
<b>2020 NEC® Changes: Overvoltage and Grounding &amp; Bonding</b>	This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications.	1	Intermediate
<b>2020 NEC® Changes: Process Review and Updated Articles</b>	This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems.	1	Intermediate
<b>2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems</b>	Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>2020 NEC® Changes: Special Equipment</b>	Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on under-floor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring.	1	Intermediate
<b>2020 NEC® Changes: Special Occupancies</b>	The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations.	1	Intermediate
<b>2020 NEC® Changes: Wiring and Protection</b>	Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection.	2	Intermediate
<b>Accessibility and Visitability</b>	Visitability is the concept of newly constructed houses being built to allow for someone with mobility disabilities to visit the house, move around inside the house, and use the restroom. The movement was founded by Eleanor Smith. The house will likely be around for a long time, and these concepts help not only people who visit, but also people who live there and may want to age in place. This interactive online course will introduce you to the principles of Visitability as well as the benefits of designing to these principles.	1	Fundamental
<b>Accessibility by Building Type: Multi-Use Facilities</b>	This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Accessible Parking</b>	In order to have an accessible site where parking is provided, people must be able to get to the site first. This means accessible parking is a necessity. This is a common part of the accessibility codes that most design professionals and building inspectors will have to deal with in their everyday work. Parking is easy to make accessible, but also easy to get wrong. This interactive, online course will point out why this should be a top priority and how to avoid the pitfalls. Components of accessible parking, location, and how many spaces are required will also be discussed.	1	Fundamental
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: <ul style="list-style-type: none"> <li>Ground and floor surfaces (302)</li> <li>Changes in level (303)</li> <li>Wheelchair turning space (304)</li> <li>Clear floor space (305)</li> <li>Knee and toe clearances (306)</li> <li>Protruding objects (307)</li> <li>Reach ranges (308)</li> <li>Operable parts (309)</li> </ul>	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501) Parking Spaces (502) Passenger Loading Zones (503) Stairways (504) Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>ADA Guidelines 2010: Recreational Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including: 1001 General 1002 Amusement rides 1003 Boating facilities 1004 Fishing piers and platforms 1005 Miniature golf courses 1006 Golf courses 1007 Exercise equipment 1008 Bowling lanes 1009 Shooting facilities 1010 Swimming pools, wading pools, and spas ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>ADA Guidelines 2010: Small Towns</b>	People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Achievable Barrier Removal and Accessibility (B)</b>	The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Designing Pedestrian Facilities using Public Right of Way Accessibility Guidelines (PROWAG)</b>	The United States Access Board is the entity responsible for maintaining the American with Disabilities Act (ADA) guidelines. While the ADA guidelines address certain features common to public sidewalks, such as curb ramps, further guidance is necessary to address conditions and constraints unique to public rights-of-way. The Access Board has been developing Public Right of Way Accessibility Guidelines (PROWAG) for the past few years. Once PROWAGs are adopted by the Department of Justice, they will become enforceable under Title II of the ADA. This course will provide a summary of the most recent PROWAGs that have been published by the Access Board and how they relate to the design of pedestrian facilities within public right of ways.	1	Fundamental
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Anatomy of Construction Defects</b>	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
<b>ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>AutoCAD 2014: Part 1 - Introduction</b>	AutoCAD® is the world's leading software for producing technical drawings or computer aided design and drafting. AutoCAD® has become the global industry standard for technical and engineering drawings. This course presents a hands on introduction to the AutoCAD® 2014 program and is the first in a series of courses on the 2014 release. You will be introduced to the AutoCAD® 2014 program and take a look at its basic features. You will also get an introduction to drawing basic shapes and lines. This course includes a practical application where you will get to complete real world examples using the AutoCAD® program.	2	Fundamental
<b>AutoCAD 2014: Part 2 - Editing Techniques</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands-on introduction to the AutoCAD® 2014 program and is the second in a series of courses on the 2014 release. In this course, you will be exploring the AutoCAD® 2014 program in more detail and looking at layers, object properties, modifying objects, and adding text annotation to drawings. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 3 - Editing &amp; Construction</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® 2014 program and is the third in a series of courses on the 2014 release. In this course, we shall cover construction lines, auto mode, hatching, dimensioning, and setting up dimension styles. We will have a practical application where we apply all of the above to a real-life situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® 2014 software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 4 - Drawing Aids and Utilities</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands on introduction to the AutoCAD® 2014 program and is the fourth in a series of courses on the 2014 release. In this course, we will look at how to create and work with groups, blocks, annotation, and utilities. We'll look at how to set up and use the coordinate systems. And then, we shall have a practical application where we apply the above to a real life problem. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 5 - Template, Layouts, and Viewports</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the fifth in a series of courses on the 2014 release. In Part 5 of our lecture series on AutoCAD® 2014 we shall cover layouts, layout templates, viewports, plotting, exporting, and at the end we shall have a practicum. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>AutoCAD 2014: Part 6 - Advanced Editing &amp; Annotation</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the sixth in a series of courses on the 2014 release. In Part 6 of our series on AutoCAD® 2014, we shall cover arrays, annotation scaling, external references, and then we'll have a practical problem where we'll apply these to a real-life engineering situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations. We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Basics of Soil Resources 1: Classification, Mapping and Data Bases</b>	The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations; 99.7 percent of human food comes from cropland, which is shrinking by more than 10 million hectares (almost 37,000 square miles) a year due to soil erosion. This 2-hour online course discusses soil as a complex, dynamic, biogeochemical system that is the principal substrata, vital to every life cycle of terrestrial vegetation and organisms. Soil serves as a reservoir of water and nutrients as well as a medium for the filtration and breakdown of wastes. Faced with climatic changes, increasing population and rapid decreases in the extent and quality of the soil resource base, the global community must now take stewardship of the resource most immediately linked to our survival.	2	Fundamental
<b>Basics of Soil Resources 2: Erosion, Desertification, Salinization &amp; Soil Acidification</b>	This course focuses on the topics of erosion, desertification, salinization and soil acidification. These are issues that affect all life on earth. 70% of earth's land capable of supporting agriculture has suffered erosion and soil degradation. This has a direct impact on the chemical cycles of life, the atmosphere, water and food supplies of the entire planet. The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations. Soil and land resources are generated, developed and renewed within a geologic time frame, in processes that take hundreds of thousands or even millions of years. The span of human history is measured in some thousands of years. For this reason, land resources must be regarded as essentially non-renewable. It is therefore exceptionally important to adopt a proactive approach to conservation and sustainable management of these critical resources.	2	Fundamental
<b>Basics of Water Resources: Groundwater Contamination</b>	Since the 1970s there has been a disturbing discovery of hazardous wastes in ground water. Early discoveries of sites such as Love Canal in New York and the Denver Arsenal in Colorado initiated a new era in groundwater studies. Throughout the 1980s numerous studies of abandoned waste sites, spills and leaking underground storage tanks became headline news. Groundwater hydrology is now critical to understand the mechanisms and rates of transport of physical, chemical and biological contamination below the ground, and the impact of those contaminants on the ground water supply. This 2-hour interactive online course covers the fundamental sources and classifications of groundwater contamination. The course focuses on the discussion of natural and man-made sources of groundwater pollution and gives some perspective into various systems of categorization and classification. The RedVector course entitled Basics of Water Resources: Groundwater Hydrology covers the introduction to the hydrologic cycle and the basic terminology of groundwater. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Basics of Water Resources: Groundwater Hydrology</b>	This 1-hour interactive online course covers the fundamentals of water supply hydrology. From the hydrologic cycle to the nature and character of groundwater as it goes from recharge zones to discharge points, the basic concepts and terminology are introduced in a clear and easy to read form. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Basics of Water Resources: Wetland Basics</b>	Once perceived as worthless, wetlands are now known to be vital to water quality, erosion control, species diversity, biological productivity and even climate. Their form and function involves a complex interaction between geological setting, hydrology and climate. Their reaction to and interaction with human activity in a region will determine the future of humans in that region, since they ultimately play a role in water quality, flood control, pollution and climate control as well as providing food and recreational resources. This 3-hour interactive online course covers the fundamentals of wetlands. Keywords: wetland, hydrology, climate, flood control, water quality, pollution, climate control, ecology, species diversity, biological productivity, environment, environmental, hydrologic cycle, chemical cycles, swamp, bog, fen, Clean Water Act, Section 404 Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Battery Applications</b>	This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material.	3	Intermediate
<b>Biofilters: A Natural Approach to Storm Water Pollutant Removal</b>	Bioswales and constructed wetlands are under increasing use to address pollutants in storm water runoff. However, many installations of these BMPs have failed or have not been as successful as hoped. This interactive online course provides a discussion of the concepts of biofilters. Most of the failures can be attributed to insufficient information being available or to bad or no expert input into the design, construction, vegetating, or maintenance of the bioswale or constructed wetland. This course is intended to provide information on the design and use of biofilters so that designers will be able to make better decisions on the design, construction, implementation, and maintenance of these Best Management Practices.	2	Intermediate
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Broward County Ordinances Chapter 9</b>	Chapter 9 of the Broward County Ordinances essentially paraphrases some of the provisions in State of Florida statutes on construction industry laws and rules, mainly from: Chapter 489 Construction Contracting, Chapter 527 Sales of Liquefied Petroleum Gas, and Chapter 553 Building Construction Standards. Chapter 9 of the Broward County Ordinances is entitled simply Contractors. Here we find ordinances which apply to specific types of contractors working in Broward County, Florida. This chapter spells out the purpose, scope, and certification requirements as well as the potential disciplinary actions which may apply to contractors who choose to operate in violation of these ordinances. In this course we review the professions covered and the purpose of the ordinances, the requirements for obtaining certification as well as maintaining and renewing a certificate, the complaint and disciplinary system, and terms vital to Chapter 9 of the Broward County Ordinances.	1	Fundamental
<b>Building Design and Construction Features for Fire Protection</b>	Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost \$12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems.	1	Fundamental
<b>Building for Senior Living: Building Codes, Sustainability, and Structural Systems</b>	Because the health of the aging can be precarious and their safety is paramount, senior housing and care facilities are very carefully regulated. Federal and state governments subject some new projects to codes that govern program areas and the construction of all the major building systems. In addition, most states have detailed regulations written specifically to govern certain senior housing and care building types, including nursing homes, adult day care, outpatient diagnostic and treatment facilities, and some forms of assisted living. These regulations cover everything from space and environmental standards to resident rights and staffing requirements. This course covers building codes, structural systems, and sustainable building design for senior housing and care facilities. Federal, state, and local codes and regulations will be discussed, including safety and accessibility requirements. Selection of appropriate structural system or combination of systems, and the incorporation sustainable design principles into the senior housing and care facilities will also be covered in this course. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Interior Design Elements and Considerations</b>	This course is divided into four major sections - Acoustics, Lighting Design, Interior Design, and Renovation, Restoration, and Reuse. Acoustics, of course, deals with sound. We will cover the many acoustical considerations to keep in mind when designing for everything from the public areas to the very private ones. In the Lighting Design section we'll cover the basics of light levels, lamping options, and daylighting. We'll also review guidelines for specialized spaces, as well as resident rooms in long-term care and assisted living facilities. The Interior Design chapter will discuss the design process, various trends, and guidelines for color, materials, and wayfinding concepts. For Renovation, Restoration, and Reuse, we'll explore options for rehabilitation, deconstruction, and new construction for the various types of facilities. We'll provide comprehensive guidelines, many images of examples, and tables of additional information. You'll get opportunities to apply what we're covering, and printable resources to reference in the future. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 1</b>	This is the first of two courses on programming and planning guidelines for senior living facilities. The senior living industry has expanded and diversified to address demographic change. This course provides an overview of the major issues involved in the planning, design, and development of specialized environments for this new group of aging Americans. Specifically, these two courses describe the issues associated with each of the 10 major building types within the general framework of design for aging. In Part 1, you will be introduced to all 10 building types, and we will take a detailed look at the first four, including Community Based Options, Geriatric Outpatient Clinics, Adult Day Care, and Long-Term Care. The remaining six building types will be looked at in Part 2. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 2</b>	Welcome to the second part of Building for Senior Living: Programming and Planning Guidelines for Facilities. In this course we will continue our discussion on the remaining six building types for these facilities. We will take a detailed look at the guidelines for Hospice, Assisted-Living Residence, Dementia/ Alzheimer's Care, Independent/ Residential Living Apartments, Continuing-Care Retirement Community, and Active Adult Community facilities. These guidelines are only a starting point for the project planning or programming effort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: The Future of Senior Living</b>	Since the 1980s, the senior living industry's response to a variety of trends and challenges has yielded new models for housing and care. This course summarizes some of the catalysts for that change, as well as those that will accelerate the rate at which the industry continues to evolve. At the end of this course, there is an extended discussion regarding the biggest challenge for the senior living industry: affordability. This course will discuss the following six issues that have been particularly challenging in recent years: 1. Demographics 2. Consumer expectations 3. Lifestyle changes 4. Service partnerships 5. New housing and care concepts 6. Affordable options Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts.... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will effect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counteract these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Chemicals Used in Mold Remediation</b>	Chemicals are an effective tool for each remediation contractor. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. We will visit the terminology and the recent trends to equip you to make better decisions for your team and project.	1	Fundamental
<b>Choosing the Best Structural Lateral Force Resisting System</b>	The decision of the lateral force resisting system for a building should be made by the structural engineer and the architect. The decision is based on a multitude of factors including structural performance, integration with architectural systems, integration with mechanical systems, constructability, and cost. This course will investigate several common lateral force resisting systems; steel moment frames, steel braced frames, wood shear walls, concrete shear walls and compare the suitability of those systems for use in low-rise buildings. Metrics will be developed to assist in the decision making process. Use of those metrics will be explored through examples.	1	Fundamental
<b>Coastal Engineering: Hurricanes and Nor'easters</b>	What is the difference between a hurricane and a nor'easter? What kind of damage can they cause to your building project? Hurricanes and nor'easters can be destructive natural events creating high winds, storm surge, large waves, and causing large amounts of erosion, jeopardizing structures built along the nation's coastlines. This interactive online course will provide information about how to build to better resist the effects of these storms, what foundation types perform better, and why these storms are so damaging to the built environment. A few case studies will be included to illustrate techniques that are known to improve building performance.	2	Intermediate
<b>Coastal Engineering: Sea Level Rise</b>	What are some causes of sea-level rise? Is it impacting all coastlines? Sea-level rise is a very real flood condition that has caught the attention of many coastal communities around the U.S. This interactive online course will provide information about the potential magnitude of this rising water, the planning required to better resist the effects of this rising water, and why sea level rise can be so damaging to the built environment. A few case studies will be included to illustrate what is being done around the country to combat this serious climate change issue.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Commercial &amp; Residential Mixed Use Development and Sustainability</b>	This interactive webcast focuses on the sustainable nature of mixed-use development. Flexible building use gathers multiple functions into a single structure to redefine sustainable growth in the 21st century. Originally, energy was the main focus in creating buildings that were in harmony with the environment. Although focus on energy and resource conservation remains, the focus has expanded to include the concept of flexibility and density. This course also focuses on the various environmental, economic, and social benefits of providing combined commercial and residential space including: water use reduction, energy conservation, infrastructure cost, infill development, and land preservation. In addition, this course also looks at new sustainability initiatives that look outside the building envelope for sustainable opportunities (e.g., LEED Neighborhood Development, Sustainable Sites Initiative).	2	Fundamental
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental



## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental
<b>Complete Streets - An Introduction to the Complete Streets Concept</b>	This course presents an introduction to the fundamental principles of Complete Streets. The planning and development of Complete Streets projects is presented. You will also learn about the elements of planning for Complete Streets and designing and implementing Complete Streets programs.	2	Fundamental
<b>Complete Streets - An Introduction to the Design of Complete Streets</b>	Complete streets are roads and streets designed and operated to provide safe access for all users, including motorists, bicyclists, pedestrians, and transit riders. Complete streets enable users of all ages, and all physical abilities to safely move along and cross an urban street. This course presents in detail elements of design for complete streets such as intersection design guidelines, modern roundabouts, pedestrian treatments, and bicycle lane guidelines. Each element will be described in terms of the general principles, design considerations, and recommended practice. A variety of case studies will be presented.	2	Intermediate
<b>Completing the Mold Remediation</b>	You work hard each day on the project, but it's how you finish the job that people remember. Remediation projects involve controlling the work place, consistency, follow through, and finishing. This course will show you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success.	1	Fundamental
<b>Concrete 1: Evaluation and Causes of Damage</b>	When taking on a concrete repair project, the first step is an important one - conducting a thorough evaluation. This 1-hour interactive online course begins with techniques for surveying the condition of the concrete, and reviews design and construction documentation, operation and maintenance records, instrumentation data, visual examination, methods of nondestructive testing and laboratory specimen analysis. The second part of the course identifies basic causes of deterioration, and covers typical symptoms, and recommendations for preventing further damage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 2: Repair Planning and Preparation</b>	The success or failure of a concrete repair project is dependent on many things, including how well you plan and prepare for the project. This 1-hour interactive online course discusses factors that should be considered before selecting a concrete repair method, as well as steps that should be taken to prepare the site before the actual repair begins. The first section of the course discusses the properties of repair materials and the concrete substrate, along with a review of important factors at the repair site itself. The second section discusses removal of concrete, and preparation of concrete surfaces for further work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 3: Methods, Materials, and Maintenance</b>	When a concrete structure fails, it requires repair. However, if not done correctly, the repair can also fail. This 2-hour interactive online course explains various methods and materials for the repair and maintenance of concrete structures. The first portion of this course describes materials and methods that are available for repair or rehabilitation of concrete structures, including their applications, limitations, and procedure. The second section of the course describes materials and procedures appropriate for cleaning and protecting concrete surfaces. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Concrete Additives: Water-Repellency &amp; Efflorescence Control in Masonry</b>	About 90% of the surface area of a masonry wall consists of concrete masonry units, with mortar joints making up the remaining. Both concrete and mortar are porous materials and, hence, can permit the passage of water through them. Therefore, a water-repellent masonry system should prevent the entry of water through both the concrete masonry units and the mortar joints. This 2-hour interactive online course provides the details of achieving water-repellency and efflorescence control in masonry construction. While the focus is on single-wythe masonry walls, the admixture technologies presented are applicable to other manufactured concrete products such as pavers and roof tiles.	2	Fundamental
<b>Concrete Fundamentals: An Introduction</b>	Are your customers or clients using words like slump, water-cement ratio, cement content, and compressive strength? Do you understand admixtures and their functions? How about reading and understanding a mix design? Do you know how to place and finish concrete? This 2-hour online course introduces the student to the basic fundamentals of concrete. This course includes a multiple-choice quiz at the end.	2	Fundamental
<b>Concrete Pavement Rehabilitation - Partial Depth Repair</b>	This 1-hour interactive online course recommends procedures for selecting, designing, and construction of partial depth repair of Portland cement concrete pavements. Partial depth repair is a concrete pavement restoration technique that corrects localized distress such as spalls, scaling, and popouts in concrete pavements. Partial-depth repair improves the rideability of jointed concrete pavement. Partial-depth repair can be used as a stand-alone rehabilitation technique. However, the Federal Highway Administration recommends its use as part of a comprehensive Concrete Pavement Rehabilitation (CPR) program. Information regarding cost and performance is also included in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete Pavement: Glass Fiber Reinforced Polymers</b>	While we're driving on them everyday, the roadways are experiencing stress. When force is applied to concrete pavement it places a certain level of stress on the concrete. It cracks, wears away, and requires costly repairs. Steel-reinforced concrete pavement (CRCP) has been used since 1921 - it's time for a better way. This 1-hour interactive online course gives you the information and the methods to improve the strength of concrete pavements using Glass Fiber Reinforced Polymer rebar. You will see why concrete fails and learn a new way to prevent it. You'll be introduced to fiber reinforced polymers. With these formulas and designs you will build longer lasting, more durable roads.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Concrete: Self-Consolidating (SCC)</b>	Self-Consolidating Concrete (SCC), also called self-compacting concrete, is a revolution in the field of concrete technology. SCC is a very fluid, high strength concrete that flows like water, compacts with little or no vibration, does not segregate, and is self-leveling. Products made with SCC have an excellent finish, and are virtually free of bug holes or honeycombing. Introduced to the concrete industry by the Japanese in the late 1980s, it is just now coming into its own in North America. This 1-hour interactive online course introduces the student to this new concrete product. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
<b>Conflicting and Non-Existent Accessibility Standards</b>	What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility.	1	Fundamental
<b>Construction Administration: MEP Commercial Buildings</b>	This 1-hour interactive online course provides the commercial building professional with guidelines for administering construction activities in the MEP (mechanical, electrical, plumbing) discipline area. Many aspects of construction administration are reviewed to provide information on the roles and responsibilities involved with this position. This course reviews the steps of MEP design for a commercial building that construction administrators are involved in as well as explaining their role in performing MEP building surveys. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course contains a lot of the same information as in the course titled 'Performing MEP Commercial Building Surveys', and it is not recommended that these courses be taken together. This course varies because it focuses on the role of the Construction Administrator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Construction Arbitration: A Brief Overview - Beginner</b>	This 1-hour interactive online course provides a brief overview of the arbitration process for the construction professional. Arbitration is often used to resolve disputes arising from the construction process, both during and after contract performance. If you are a prime contractor, subcontractor, architect, engineer, construction manager, owner's representative, surety, insurance company, or otherwise involved in the construction industry, it is highly likely that you will be a party to one or more arbitration proceedings during your career. This course will provide basic information to the construction professional allowing him or her to understand the arbitration process. There will be a multiple-choice quiz included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Construction Claims: Changed Work</b>	This 2-hour online interactive course provides a basic understanding of types of changes in work—directed or constructive change—and changed conditions. It provides an in-depth examination of cumulative impact, emphasizing how to identify types of change-related impacts, that includes a detailed discussion of the Leonard Study. In addition, it discusses how to address cumulative impact and assess allowance for recovery. Summaries of actual court cases are incorporated into the course to illustrate how changed work claims are determined. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Construction Cost Estimating: Resources and Processes</b>	Being able to accurately estimate (within acceptable ranges) the cost of construction of any project, at any given stage in the process (whether just at concept, during design development, or fully developed and ready-to-advertise design) is an invaluable skill for anyone in the construction industry. How can an estimator become better and more accurate? In order to prepare an estimate, there are several items to consider, including the estimating team, how the quantity takeoff is going to be done, what data resources are available for pricing, how the estimate's going to be prepared and organized and how it's going to be adjusted based on multiple bid factors and the construction economy. In this course, you'll learn how to utilize some of the most important resources and tools available to you, as an estimator.	1	Intermediate
<b>Construction Cost Estimating: Types and Purposes of Estimates</b>	Did you know opinion of probable cost does not mean the same thing as an estimation of cost? While this may be a term used by design consultants in the preliminary stages of a project's estimate, this should not be mistaken for an estimation of cost. This is simply a professional opinion based on experience and available knowledge. The responsibility of a Contractor is to provide a detailed quantitative analysis of each material cost or step in the process for a given project. This interactive online course will educate you on the various types of estimates that can be provided as well as the methods to do so accurately.	1	Intermediate
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Crime Prevention Through Environmental Design: Surveys &amp; Floor Plan Reviews</b>	This course will introduce Crime Prevention Through Environmental Design (CPTED), as it pertains to professionals assisting their clients to design or obtain safer built environments. Students will understand the CPTED strategies so that they can incorporate them based on clients' needs or better understand the strategies when dealing with security planners or consultants. Displayed examples will include physical security surveys and architectural plan reviews so that after-market security countermeasures can be reduced or eliminated. CPTED can also assist professionals with bidding processes. This course will explore residential, commercial, and venue CPTED concerns through multiple examples of floor plan reviews and physical security survey checklists.	2	Fundamental
<b>Data Centers: Connectivity Requirements and Architectural Layouts</b>	Once a site for a data center has been identified and acquired, the multi-year process of design, construction, testing & commissioning, and equipment installation begins. Data Centers are resource hogs - but above all, they require tremendous amounts of power and data communication to operate effectively and efficiently. Appropriate network (power & communication) designs are essential; robust and redundant facilities are mandatory to a 24x7x365 uptime environment. Housing this equipment through appropriate site (Civil) and superstructure (Structural) design and construction efforts is the first layer of defense against network or equipment failure. So, what does it take to make a data center run reliable? In this course, we will review the connectivity demands and requirements for fiber and power, as well as some of the best practices for architectural and structural layouts in modern data centers.	1	Intermediate
<b>Data Centers: MEP, Fire Protection, and Equipment Rooms</b>	Connectivity. The internet of things. Uptime. Reliability. What are these things? These are all terms and concepts that relate to the always connected, always on world that has evolved out of the digital age. The cornerstone of these concepts is the modern data center - massive, hulking, and also secretive buildings that house the hardware, firmware, and software that power our everyday lives. Email, phone calls, Facebook, Google - these are all services provided by the computers housed in data centers. They are located all over the country and the world. They are in high rise buildings in dense urban areas, and they are located in remote rural campuses. They are small, occupying a few thousand square feet in old, Tier I locations, or they can be massive, hundreds of thousands of square feet with 50MW of electrical power. These technological marvels require significant infrastructure to maintain the always-on, always-available status that we demand of services in the modern world. That level of reliability is not achieved through chance. Significant effort and expense is required to facilitate conditions that are conducive to 24x7 reliability. Not the least of which are Mechanical, Electrical, Fire Protection, and Security Systems for these centers. In this course, we will dive into the complexities of these systems. By the end of this course, you will be familiar with the unique language and terms used to discuss the various elements of these systems - like PDU, UPS, EUI, and PUE (and, no, since this is not a one-man interpretation of Robin Williams' efforts in Good Morning, Vietnam! you can rest assured that I didn't make up any of those terms). You will also be able to understand the challenging design strategies that drive the installation and maintenance of these complex and integrated systems, and you will also have a much more in-depth understanding of the costs that drive data center design, construction, and maintenance efforts. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	2	Intermediate
<b>Data Centers: Operations &amp; Maintenance, Upgrades, and Expansions</b>	If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.	1	Intermediate
<b>Data Centers: Planning, Siting, and Selecting</b>	Data centers are the brain and nerve centers of today's high tech environment. Email, webpages, phone calls, banking records, online purchasing, and facilities controls are just a few of the myriad items that require efficient, accurate, and secure electronic transmission and storage. The crux of this entire system is the modern data center - millions of square feet of high power and cooling density systems that process quadrillions of signals. Data Centers can cost in excess of \$1B to design and construct - and most systems rely on multiple data center locations. Properly siting and planning the data center, or data center network, is the first step in a multi-step process.	2	Intermediate
<b>Data Centers: Trends, Technologies, and Efficiencies</b>	Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.	1	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
Decks, Stairs, Rails for Home Inspectors	In this course we'll cover the design and construction of the decks, stairs, and rails from the home inspector's point of view. I'll review some of the basic definitions so that you'll know the proper terminology to use in writing your reports. You'll learn what to look for to ensure proper support. You'll see pictures of good construction compared to unsafe construction. We'll cover materials and fasteners and I'll give you specific examples of what you need to watch for and document. We'll review the requirements for heights, widths, and distances between components to assure a safety for users, and as we go through the course, I'll give you inspection tips from my own experience.	2	Fundamental
Deconstruction and Reuse: Sustainable Construction in Reverse	This interactive webcast focuses on the differences between conventional demolition and deconstruction. We will also focus on the environmental and economic rewards from taking a building apart - either wholly or partially - with the intent of salvaging (recycling or reusing) building materials. This approach varies greatly from conventional demolition which involves material removal and disposal. This course will focus on the types of building materials and their potential for reuse. Some materials have a long tradition of reuse (e.g., bricks, metal), whereas other materials are now finding a new vocation (e.g., plumbing fixtures, doors). We will also explore case study examples of both evolving deconstruction techniques and the types of materials salvaged.	2	Fundamental
Design of Bicycle Facilities - Buffered Bike Lanes	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle transportation networks. One of the key elements being used to improve bicycle transportation networks is the construction of buffered bike lanes. In this interactive online course, key planning and design considerations for buffered bike lanes will be reviewed. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of buffered bike lanes and that support their implementation, such as traffic separator options, mid-block crossings and intersection accommodations.	2	Advanced
Design of Bicycle Facilities - Cycle Track Design	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing main bicycle thoroughfare facilities, such as cycle tracks, as key elements of their transportation network. Cycle tracks can be considered as bicycle arterials or bicycle highways; this interactive online course will outline the planning and design elements needed to develop cycle tracks that support this main thoroughfare purpose. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of cycle tracks and that support their implementation, such as ADA accommodations, vehicular traffic level considerations, and the design of geometric elements to accommodate on-street parking, transit facilities and left-turn movements from the cycle track.	2	Advanced
Design of Bicycle Facilities - Multi-Use Paths	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation and a 30% increase in pedestrians. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle and pedestrian transportation networks. One of the key elements being used is that of multi-use paths. Engineers, Architects, Contractors and other professionals from the A/E industry will gain core knowledge under this course for the planning and design of multi-use paths. This interactive online course will cover key guidelines from AASHTO, FHWA and NACTO in the development of multi-use paths, with a special emphasis in ADA elements, geometric requirements such as horizontal and vertical curvature design, and the adequate development of multi-use path crossings and roadway mid-block crossings.	2	Advanced
Design of Buildings for Coastal Flooding	This course provides information important to the design of foundations used in coastal areas. The design methodology comes from FEMA's Coastal Construction Manual (CCM) and has been developed from studying failures after numerous coastal storms. Flood loads are developed using both ASCE 7 and the CCM and applied to pile supported structures. Other flood effects such as erosion and scour are covered. Pile design is discussed as well as bracing methods used in pile systems. An example of how to calculate flood loads and how to apply them to the foundation at a coastal location is included to help provide context on the method and magnitude of the loads.	2	Advanced
Design of Buildings Using Insulated Concrete Forms (ICF)	This course is intended to present a comparison of engineering analysis approaches to the design of building structures for Insulated Concrete Forms. The course covers the Prescriptive Method (developed by HUD through PCA) and the two appropriate sections of the 2011 ACI code for walls. A simple, 2-story house with a basement is used as an example to demonstrate the application of both of these methods for a 6 inch thick waffle-slab and a flat panel ICF wall.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Analysis and Design of T Beams and Doubly Reinforced Beams	In this course you will learn ways to analyze T beams and utilize doubly reinforced beams. This course will demonstrate how to size and find required quantity of steel based on the consideration of strength and serviceability requirements. This course shows how to utilize doubly reinforced beams to account for bending moments. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Bond, Development Lengths, and Splices	In this course we will cover how to properly bond beams for a variety of purposes by calculating the development lengths for the reinforcement bars, which will help to provide extra strength to the beams. Factors affecting your developmental length calculation will also be covered, such as critical sections of a beam. We will also cover how splices can help or hinder your project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Rectangular Beams and One-Way Slabs	In this course you will receive comprehensive information on rectangular beams and one-way slabs. We will give you load factors, considerations necessary for beam design, limitations of lateral bracing and deep beams, and examples of beam design. We'll also cover bundled bars, one-way slabs, and reinforcement of cantilever and continuous beams. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Design of Reinforced Concrete Using the ACI Code: Design of Short Columns Subject to Axial Load and Bending</b>	The purpose of this course is to cover some of the aspects of a column that will influence your selection, design, and/or analysis of a column(s) to be used in the support of a structure. This course will cover such topics as: Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Flexural Analysis of Beams</b>	In this course you will learn the three progressive stages that occur before a beam collapses and how to calculate the stress of concrete beams at the different stages. In this course, we will cover formulas you can use to calculate a beam's stress, both in concrete and steel, and when those formulas should be used. We will be utilizing examples to enhance your understanding of each formula's use and what is occurring at each stage. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction</b>	This course will introduce you to concrete and reinforced concrete. You will get definitions, advantages and disadvantages, and descriptions of the different types of concrete. We'll examine all the aspects of concrete - its composition, compatibility with steel, weights and strengths, and load types. You will learn to analyze your concrete needs and to identify the solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction to Columns</b>	You need to be familiar with many types of columns in order to design the safest, most economical building that makes the best use of interior space. This course gives you the types of columns, information on column failure, and the limitations of the ACI Code. You also get a discussion of economical column design and formulas you can use to design for axially loaded columns.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Serviceability</b>	Serviceability addresses the issue of performance. In this course you will examine deflections and cracks. We'll give you background material on the importance, control, and calculation of deflections. You'll be instructed in effective moments of inertia, long term deflections, simple-beam deflections, and continuous-beam deflections. We'll also review types of cracks, control of flexural cracks, ACI code, provisions concerning cracks, and miscellaneous cracks. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Shear and Diagonal Tension</b>	The objective of today's reinforced concrete designer is to produce ductile members that provide warning of impending failure. To achieve this goal, the code provides design shear values that have larger safety factors against shear failures than do those provided for bending failures. The failures of reinforced concrete beams in shear are quite different from their failures in bending. Shear failures occur suddenly with little or no advance warning. Therefore, beams are designed to fail in bending under loads that are appreciably smaller than those that would cause shear failures. This course discusses shear and diagonal tension on reinforced concrete and how different types of reinforcement can help mitigate the damage caused by cracking. Definitions related to concrete construction and reinforcement will be provided, as well as shear design example problems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Slender Columns</b>	When a column bends or deflects laterally an amount $\delta$ , its axial load will cause an increased column moment equal to $P\delta$ . This moment will be superimposed onto any moments already in the column. Should this $P\delta$ -moment be of such magnitude as to reduce the axial load capacity of the column significantly, the column will be referred to as a slender column. In this course we will examine the characteristics of slender columns and how the ACI code applies to these columns, paying close attention to the calculations and procedures used in determining K factors and computing moment magnifiers. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Strength Analysis of Beams</b>	This course takes a look at strength analysis of beams according to the ACI code. You will be introduced to two different design methods, working-stress design and strength design; with the focus of the course pertaining to strength design. We will take a look at the advantages of strength design and why it has moved to the preferred method. We will examine two methods used for calculating structural safety of a reinforced concrete structure. We will take a look at varying expressions associated with stress load and beam integrity. We will explain the different ACI codes and how they relate to beam strength. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Two-Way Slabs, Equivalent Frame Method</b>	In this course, we will illustrate how moment distribution can be applied to the analysis of structures consisting of non-prismatic members. We will also explain the difference between the direct design method and the equivalent frame method, and list the properties of slab beams and columns. An example problem using the equivalent frame method will be demonstrated, as well as explanation of the benefits of computer analysis. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Water Efficient Buildings</b>	This interactive webcast will discuss approaches for conserving water including water efficient building technologies, simple systems for recycling and reusing water on site, and how to drastically decrease the demands on shared supplies. This course will also discuss the many great environmental and economic benefits to water efficient buildings. We will conclude with details on LEED (Leadership in Energy and Environmental Design) criteria for water efficiency, plus additional case study examples on innovations in wastewater treatment and reuse	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced
<b>Designing and Specifying Pervious Concrete</b>	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
<b>Designing Buildings for Tornadoes</b>	This course will present the most up to date ideas about designing buildings for the devastating effects of tornadoes. The focus will be on how to improve building performance and reduce damage to buildings impacted by tornadoes. The presentation will cover tornado research topics, design methods using ASCE 7-10 with needed modifications to account for tornado wind structures, and some examples on how to apply these concepts to building design.	1	Intermediate
<b>Designing for Flood Loads Using ASCE</b>	This course will provide technical information important to flood design for all types of buildings and all types of flood conditions. We will cover the minimum design and construction standards required by regulations. You will learn the current design methodologies for foundation issues for both riverine and coastal buildings. This course will cover the limitations of prescriptive solutions for flood-design problems. Flood load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures and ASCE 24 Flood Resistant Design and Construction will be discussed. And you will learn how to retrofit existing buildings with flood-resistant features. As we learn more about this devastating hazard and communities strive to be more sustainable, flood provisions in state and federal regulations are changing, as well as design concepts and methodologies, making it essential for engineers to remain engaged with these changing methodologies.	2	Advanced
<b>Designing Foundation Repairs</b>	What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair.	2	Intermediate
<b>Designing Permanent Erosion and Sediment Control Systems</b>	Development of land, whether it is for a new highway or a new office building, requires the re-contouring of terrain. And as such, requires a redistribution of drainage patterns. This change in the land creates the potential for long term erosion through storm events that occur during the life of the project. To prevent long term erosion, permanent erosion and sediment control system need to be developed as an integral part of the projects' designs. The primary goals of this interactive online course are to familiarize Engineers, Architects and Contractors with the design and application of different Best Management Practices (or BMPs for short) in the design of Permanent Erosion and Sediment Control.	2	Intermediate
<b>Designing PEX Plumbing Systems to Optimize Performance and Efficiency</b>	What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance.	1	Fundamental
<b>Designing Temporary Erosion and Sediment Control Systems</b>	Earthwork activities during construction disrupt natural and man-made ground coverage, creating the potential for erosion hazards and the contamination of natural resources. This interactive online course teaches you about best management practices for temporary erosion and sediment control. You will also learn about common regulations and requirements set in place to minimize significant impact upon the health, safety and welfare of the community.	3	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Designing Using LRFD Principles</b>	What is LRFD? LRFD (Load and Resistance Factor Design) principles are used in structural engineering applications so structural reliability is more consistent across various materials and loading conditions. This concept becomes particularly important in performance-based design scenarios when the structural engineering solutions are required to address how the structure is used and expected to perform - and not prescriptive building codes. This interactive, online course will review load factors, resistance factors, and reliability theory. We will also discuss the four material types (wood, steel, concrete, and masonry), looking at how each of these material standards deal with LRFD design.	2	Intermediate
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced
<b>Digital Transformation: Four Steps to Implementing a Digital Transition</b>	Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course.	0.2	Intermediate
<b>Digital Transformation: What is Big Data?</b>	Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course You'll learn what this means for businesses and how Big Data is already transforming different industries.	0.2	Intermediate
<b>Downcycle, Upcycle, Precycle, and Recycle: Waste Prevention and Reuse</b>	This interactive webcast explores the concepts of downcycling, upcycling, precycling, and recycling. In an era of resource conservation, the idea of reuse is paramount to meeting sustainability goals. We will introduce green-minded professionals to the concepts of downcycling (reclaiming), upcycling (refashioning), precycling (reducing waste), and recycling (reuse). We will focus on the environmental, economic, and social benefits of these four types of waste prevention. In addition, we will look at the relationship between waste reuse and technological advancement. Lastly, we will explore case studies of cutting edge waste reuse and reduction.	2	Fundamental
<b>Driven Piles: Introduction to Static Analysis Methods</b>	Driven piles are a dependable and cost effective deep foundation solution to maintain the integrity of structures. Produced as long columns of steel, timber, or concrete, they provide additional support to structures on land and over water, especially during natural disasters such as floods and hurricanes. Testing of installed piles can determine the load carrying capabilities of the pile, ensuring the strength and stability of the foundation before construction begins. This 1-hour interactive online course is the third of a series of courses on driven piles. This course covers an introduction to static analysis methods, including basics of static analysis, events during and after pile driving, load transfer, effective overburden pressure, selection of design soil strength parameters and factors of safety. Other courses cover design of single piles and design of pile groups. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Driven Piles: Pile Type and Selection</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. This 2-hour interactive online course covers the many different types of piles available and explains the appropriate conditions for each type of pile. There is also a section covering the different types of degradation and how each pile substance might respond to these difficult environmental circumstances. The information is provided to help designers choose the best pile type for any given project. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driven Piles: Static Analysis - Pile Groups</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base which can be used in different types of foundations. This 3-hour online course is the fifth course in a series on pile design. This course reviews static analysis of driven pile groups, including bearing capacity analysis of pile groups in cohesionless soils, cohesive soils and layered soils. The course material covers analysis of uplift capacity and lateral capacity, special design considerations such as downdrag, lateral squeeze of foundation soil, bearing capacity of piles in soils subject to scour, and soil and pile heave. This course also addresses additional design considerations including time effects on pile capacity, effects of construction techniques, plugging of open pile sections, and pile driveability. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Static Analysis - Single Piles</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base that can be used in different types of foundations. This 3-hour interactive online course is the fourth course in a series on pile design, covering static analysis of single driven piles. This course reviews bearing capacity analysis of single piles in cohesionless soils, in cohesive soils, in layered soils and on rock. Analysis of uplift capacity and lateral capacity is also reviewed. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles, including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Subsurface Exploration and Testing</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. Driven piles easily adapt to variable site conditions to achieve uniform minimum capacity with high reliability, thus eliminating uncertainty due to site variability. This 2-hour interactive online course covers the subjects of subsurface exploration, in-situ testing and laboratory testing. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Construction & Trades (Continued)

Title	Description	Hours	Level
Ductile Iron Pipe	Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Electric Power Substations	This webcast covers basic information regarding electric power substations and the distribution of electric power, including components of power substations, individual equipment components, and electric power distribution systems. General information related to operational aspects of substations and distributing electric power is included.	1	Fundamental
Electrical Installations 1: Electrical Laws, Components and Circuits	The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time.	1	Fundamental
Electrical Work for Florida Pool Contractors	Are you up-to-date on the 2017 NEC requirements for swimming pools? This interactive online course will review NFPA 70, 2017 National Electrical Code, Article 680 Parts I and II, which contain the requirements for swimming pools, fountains, and similar installations. Included will be a review of certain definitions and the requirements associated with ground fault protection, corrosive environments, motors, lighting, receptacles, and equipotential bonding. Various changes associated with the 2017 NEC will also be highlighted.	1	Advanced
Essentials of Quality Concrete	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
Ethics for Certified Planners	Most planners will work either in the public sector or in close connection with the public sector at some point in their professional career. Planners associated with the public sector have a unique charge to make ethical policy decisions with the welfare of citizens in mind. The goal of this 2-hour interactive online course is to expose planners to the importance of ethics within the planning profession and develop a thorough understanding of the American Institute of Certified Planners (AICP) Code of Ethics and Professional Conduct. This course explains the importance of the AICP Code of Ethics and Professional Conduct and helps planners hone their ethical problem solving skills through practice ethical scenarios. This course will also cover some of the most common ethical considerations within the planning profession, including: <ul style="list-style-type: none"> <li>• Serving the Public Interest</li> <li>• Social Responsibility</li> <li>• Environmental Responsibility</li> <li>• Consequences of Policy Implementation</li> <li>• Interrelatedness of Decisions</li> </ul>	1.5	Intermediate
Ethics for Texas Residential Contractors	Residential contractors are responsible for creating and maintaining safe homes for their communities. Contractors are considered to be professionals and should always act in an appropriate and professional manner; therefore it is important to have an understanding of the ethics that govern this profession. The goal of this 1-hour interactive online course is to examine chapters in the Texas Statutes Property Code to develop a working knowledge of professional ethics and an understanding of the complexities of professional decision-making. The following sections from the Texas Statutes Property Code will be discussed in this course: <ul style="list-style-type: none"> <li>• Title 4: Chapter 28. Prompt Payment to Contractors</li> <li>• Title 5: Chapter 53. Liens</li> <li>• Title 16: Chapter 418. Prohibited Practices</li> </ul>	1	Fundamental
Ethics: Shades of Green	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
False Alarm Prevention	Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental



## Construction & Trades (Continued)

Title	Description	Hours	Level
Fire Alarm Essentials	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
Fire Essentials and Fire Science	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
FL Statutes Ch. 489, Part I: Construction Contracting 2 [V.06]	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This 4-hour online course is the second of two courses based on Title XXXII, Chapter 489 of the Florida 2006 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
FL Statutes, Chapter 489, Sections 101 - 114: Construction Contracting [V.02]	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
Florida - Wind Design and Wind Mitigation Requirements	The Sunshine State is known for its beautiful beaches and tropical weather. Surrounded by warm ocean waters, it is this location that makes it especially vulnerable to severe tropical storms. Winds from these storms can cause severe destruction; therefore, the State of Florida has enacted building regulations to help minimize the damages caused by severe storms. This interactive online course will cover the latest wind design and wind mitigation requirements from the Florida Building Code (based on ASCE 7-10, the 2010 version of the ASCE standard). In this course, we will cover what is applicable in this building code, types of issues covered in the wind design arena, and changes to the wind speed maps. Other issues covered include exposure of a building site, opening protection and enclosure classifications for how to protect a building in wind regions. The code has an alternate all heights method, which will be covered briefly. We will also talk about roof and wall components, and the special requirements for those components in high velocity hurricane zones, or more specifically, south Florida.	1	Fundamental
Florida Building Inspectors: Ethics	Florida Building Inspectors, like other workers upon whom the public depends for impartial assessments, are subject to certain ethical mandates that prohibit conflict between public duty and private interests. This 1-hour interactive online course covers the chapters that apply to building inspectors based upon the Florida Commission on Ethics' Code of Ethics for Public Officers and Employees, Chapter 112, Part III, F.S., and Chapter 468, Part XII, F.S. The course also takes a look at ethical issues that may arise on the job, and gives the guidelines many inspectors use to uphold their own reputations and that of their profession.	1	Fundamental
Florida Construction Contracting: Chapter 489, Section 101-114	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
Florida Construction Lien Law, Chapter 713	This course covers Chapter 713 Part I of the Florida Statutes which addresses Construction Liens. We have prepared it with contractors, laborers, subcontractors, sub-subcontractors, and materialmen in mind to familiarize you with the core concepts in this Chapter. Our goal is to increase your understanding of the terms and concepts used in Chapter 713 so you are familiar with them when reviewing the text of the statutes for yourself or conferring with your own counsel on Construction Liens. We will review key portions of Chapter 713 and elaborate on them with explanatory notes and commentary. For the full text of each statute please refer to the Florida Statutes. These can be found at: <a href="http://www.leg.state.fl.us/Statutes/">http://www.leg.state.fl.us/Statutes/</a> Because this is an evolving law, you should consult legal counsel with any questions you may have.	1	Fundamental
Florida Laws and Rules for Electrical and Alarm Contractors Based on Published Florida Statutes	This interactive course will review three Florida specific documents. First we'll review Florida Statute 455 General Provisions related to Business and Professional Regulation. Included will be information concerning licensing, examinations, penalties, and address of record. We'll then review Florida Statute 489, Part II, Regulation of Professions and Occupations related to Electrical and Alarm System Contracting. Included will be information concerning definitions, renewals, alarm system agents, alarm confirmations and audible alarms. And last, we'll review Florida Administrative Code 61G-6 related to the Electrical Contractor Licensing Board. Included will be information concerning continuing education, disciplinary guidelines, burglar alarm system agents, and identification cards.	1	Fundamental
Florida: Building Inspector's Laws & Rules	This informative course thoroughly explores the state of Florida's rules and regulations for building code administrators, building code inspectors and plans examiners. Requirements from Chapter 61G19 of the Florida Building Code Administrators and Inspectors Board are presented as well as a look at Chapter 468 from the Florida Statutes which discusses similar state regulations. In addition, FS Chapter 553 has been added. Chapter 553, Florida Statutes (F.S.), Part IV, is known as the Florida Building Codes Act. This statute addresses building construction standards and provides for a unified Florida Building Code. The information provided will keep any interested building professional informed on the latest licensing, penalty, certification, and education specifications for the state of Florida.	2	Fundamental
Fracking: Environmental Consequences	Hydraulic fracturing is done with surprising precision and with an eye on the environment, yet it is interesting how the public reacts to the practice in relation to other techniques used throughout the world. Valid points are made on both fronts. The major concern against fracking resides in the overall health and well-being of people close to a well site, as well as the land, water, and air that might be adversely affected. With proper examination and logic, this course was developed to provide insight and reason in a practice fueled by profit for some and by civil concern for others. We will explore the history, public and media perception, and environmental and economic impacts. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Fundamentals of Asphalt Pavement Design</b>	This training presents the fundamentals of asphalt pavement design. This course will introduce asphalt pavement systems, as well as asphalt pavement materials and their properties. The characteristics of asphalt concrete are presented, followed by description of the properties of asphalt pavements. A review of current asphalt concrete mix design methods is presented. The elements of the structural design of asphalt pavements will be discussed in detail. This includes the AASHTO method for determining layer thicknesses. This course will enable pavement engineers, materials engineers as well as materials technicians to gain a better understanding of the fundamentals of the asphalt pavement design process and analysis. Examples and sample calculations are included throughout this course.	2	Fundamental
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Generating Electricity</b>	This course is an introduction to the basics of generating electricity and covers the primary types of generation used today. The main pieces of equipment used in electricity generation are covered, as well as how generation is managed to meet demand from customers.	1	Fundamental
<b>Geothermal Heat Pumps</b>	This 2-hour interactive online course is an overview of geothermal heat pump systems. The course covers the basics of how a heat pump works and the specific differences between an air source heat pump and a geothermal heat pump. The benefits of using geothermal are discussed as well as the costs including installation costs, energy cost, and maintenance costs. Issues such as how to select the most appropriate antifreeze solution are discussed along with the merits of each type of loop system likely to be used in a geothermal application. There is a test included at the end of this course to assess the student's understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Going Green with BIM and GIS</b>	The goal of sustainable design is to create healthy environments through environmentally responsible planning and development. Geographic Information Systems (GIS) and Building Information Models (BIM) are both sophisticated technological tools that provide information in a more efficient and readily available manner than traditional design tools (e.g., CAD, maps). Traditional tools prove too costly, too time-consuming, and do not contain sufficient information for environmentally focused assessments and performance analysis. This interactive online course will expose planning, design, and construction professionals to the importance of using Building Information Models (BIM) and Geographic Information Systems (GIS) to work collaboratively throughout projects and to help professionals develop a thorough understanding of how these technological tools provide critical information when making sustainability decisions. GIS and BIM allow project team members to answer questions and solve problems by warehousing data that can be quickly analyzed and easily shared. Both GIS and BIM allow for providing consistency in coordinating changes for the design team and allow advanced visualization before project siting (GIS), design, or construction (BIM) has taken place.	2	Intermediate
<b>Grading and Drainage Design of Modern Roundabouts</b>	Modern roundabouts are a proven and effective safety improvement for roadway intersections. The main focus of roundabout design documentation has been in its traffic capacity and geometry. Once these features are set, the vertical design (grading and drainage) becomes the most critical portion of the design execution and the main component in determining the construction cost of roundabouts. In this interactive online course, engineers, architects, planners and contractors will learn design techniques and best practices to develop efficient roundabout grading and drainage designs.	1	Advanced
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building Technology for Home Inspectors</b>	This presentation applies to the application of green building technology for house construction and housing components. It will give you a brief overview of how they work and how they are applied including installation and components. We'll talk about the history and the background of green technology, building envelope and modifiers, controlling moisture and temperature, ICFs and SIP-type construction. ICF being insulated concrete forms and SIP being structurally insulated panels, radiant barrier technology, solar, passive and photovoltaic, insulation technology, tankless water heaters, which are all considered green components in the green technology purview.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Green Building with Steel - Part 2: Guidelines for Builders, Trades and Inspectors</b>	Green Building is rapidly becoming mainstream. Are you ready to meet the demands? Are you recommending and using steel as a primary structural building material? Do you know steel's level of recyclability and efficiency of assembly. This interactive online course will teach you Green Building using steel, with a focus on Cold-Formed Steel Framing. You'll get what you need to know the key elements that make up steel framing; plus you'll get techniques to fit plumbing and electrical components. This is the second course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings Light Gauge Metal Components for Framing Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate
<b>Green Building with Steel - Part 3: Light Gauge Metal Components for Framing</b>	The use of steel as a primary structural building material is rapidly becoming mainstream in Green Building. It is inherently recyclable and easy to assemble. You can become an expert very quickly. This interactive online course will teach you to use steel in green building. You'll learn about structural and non-structural steel walls, steel wall components, details of assembly, steel flooring systems, and fasteners. This is the third course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings Guidelines for Builders, Trades and Inspectors Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate
<b>Green Building with Steel - Part 4: Framing With Steel Studs</b>	It makes more sense than ever to use steel as a primary structural building material. It is inherently recyclable and efficient to assemble. That makes it your best choice for sustainable building material. In no time you can be the local expert in green building with steel. This interactive online course gives you Green Building with a particular focus on framing with steel studs using Cold Formed Steel (CFS) and the various methods of building exterior and interior frames. This is the fourth course in the Green Building With Steel series. Additional courses are: Material Attributes, Manufacturing, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications It is helpful to you to take the first three courses in the Green Building With Steel series before beginning this one.	3	Intermediate
<b>Green Building with Steel - Part 5: Erecting An Engineered Red Iron Steel House</b>	Steel as a primary structural building material with its inherently recyclable nature and its efficiency of assembly is the logical and responsible choice for Green Building. You can become an expert in erecting a Red Iron steel frame house and you can learn how to earn the coveted LEED points for your project. This interactive online course provides you with the benefits of building with red iron steel as well as instructions for constructing floors, walls, and roofs. You also get information on secondary framing and finishing. Lastly you receive what you need to qualify for LEED certification. Other courses in this Green Building With Steel series provide additional information on the application and technical aspects of Steel Design and Construction. Material Attributes, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Framing With Steel Studs	4	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or underused out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbox. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	<p>Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series:</p> <ul style="list-style-type: none"> <li>Green Infrastructure 2: Best Practices for Site Assessment</li> <li>Green Infrastructure 3: Best Practices for Streetscape</li> <li>Green Infrastructure 4: Best Practices for Pavement</li> <li>Green Infrastructure 5: Best Practices for Utilities</li> <li>Green Infrastructure 6: Best Practices for Stormwater Management</li> <li>Green Infrastructure 7: Best Practices for Landscape</li> <li>Green Infrastructure 8: Best Practices for Construction Practices</li> </ul> <p>Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are:</p> <ul style="list-style-type: none"> <li>Soil testing</li> <li>Hydrologic and hydraulic analysis</li> <li>Vegetation assessment, preservation, and transplantation</li> <li>Invasive species evaluation</li> </ul>	1	Intermediate
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	<p>Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are:</p> <ul style="list-style-type: none"> <li>Working with community groups</li> <li>Attractive Streetscapes safe for pedestrians and vehicles</li> <li>Improvements that promote good health in cities</li> <li>Upgrades that are cost-effective and sustainable</li> <li>Changes that provide for increased security</li> </ul>	2	Intermediate
<b>Green Infrastructure 4: Best Practices for Pavement</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get:</p> <ul style="list-style-type: none"> <li>Pavement lifecycle</li> <li>Pervious vs. impervious pavement</li> <li>Albedo or Reflectivity of pavement</li> <li>Pavement materials</li> <li>A materials program</li> <li>Material applications</li> </ul>	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	<p>This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get:</p> <ul style="list-style-type: none"> <li>Mechanisms to affect right-of-way construction by private utilities</li> <li>Technology to minimize pavement damage and degradation</li> <li>Upgrades to utility installation and maintenance</li> </ul>	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	<p>This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get:</p> <ul style="list-style-type: none"> <li>Integrated stormwater management planning</li> <li>Water pollution prevention</li> <li>Construction runoff prevention</li> <li>Surface pretreatments for filtering runoff</li> <li>Catch basin inserts and water quality inlets</li> <li>Detention and Infiltration structures</li> <li>Constructed wetlands</li> </ul>	3	Intermediate
<b>Green Infrastructure 7: Best Practices for Landscape</b>	<p>This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get:</p> <ul style="list-style-type: none"> <li>Citywide landscape planning</li> <li>Maintaining and enhancing biodiversity and ecology</li> <li>Landscapes capable of high rates of stormwater absorption, infiltration, and treatment</li> <li>Tree planting for quantity, density and diversity</li> <li>Turfgrass reduction</li> <li>Plant selection</li> <li>Designing water-efficient landscapes</li> <li>Pest Management</li> </ul>	3	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 8: Best Practices For Construction</b>	This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts	1	Intermediate
<b>Green Street Retrofit</b>	How do you define a green street? This interactive, online course tells the story of street renovations implementing Low Impact Development design strategies. Retrofitting conventional streets into green streets provides stormwater treatment to remove pollutants from stormwater runoff and when feasible allowed to infiltrate as recharge. Monitoring of stormwater runoff volumes and pollutant loads can be conducted to demonstrate the effectiveness of the retrofit projects. Converted green streets also allow for educational potential to raise awareness about stormwater pollution (and solutions). This course will focus on the many environmentally friendly green infrastructure initiatives in Chicago, Illinois.	2	Fundamental
<b>Green Streets</b>	Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and rivers Ensure the street has the least impact on the surrounding environment Help ensure the safety of the pedestrian or bicyclist on the street Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Urban Design</b>	Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements	2	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.	2	Fundamental
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>HAZWOPER Medical Surveillance</b>	HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and are not experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed.	0.4	Intermediate
<b>Health Effects Caused by Mold</b>	In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans.	1	Fundamental
<b>Heavy Construction Equipment Basics - Earthmoving &amp; Excavating</b>	Contractors do many types of construction activities that require many different types, sizes and groupings of equipment. Most new construction projects are connected to the earth by some type of foundation system. Utilities are located underground so they are less obtrusive and not in the way. Building sites must drain away from the structure and divert the water to a safe place. All of these activities require excavating and earthmoving. The focus of this 3-hour interactive online course is big iron used for excavating and earthmoving. Discussion is intended to be basic. Content is not intended to be comprehensive. Discussion focuses on the basic principles for heavy equipment selection, grouping and simple costing. Earthmoving equipment discussed includes bulldozers, front-end loaders, motor graders, scrapers, and dump trucks. Excavating equipment discussed includes excavators, backhoes and trenchers. A short test must be completed after each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Heavy Construction Equipment Basics - Lifting</b>	Vertical construction requires building a structure up or away from the surface of the earth. The work requires heavy construction equipment for moving workers, materials and other equipment onto the structure as it is built. Hoisting or lifting loads is an integral part of this construction. How it is to be done must be incorporated into the construction strategy and how much it will cost must be included in the budget. Choosing the right lifting equipment and rigging is mandatory for safe vertical construction. Content included in this 2-hour online interactive course is intended to be basic. Discussion focuses on basic principles for lifting equipment selection, capabilities and uses. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>HEPA High Efficiency Filters</b>	This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPA's are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Historic Preservation: An Introduction</b>	Historic Preservation is the identification, protection and enhancement of historic resources or features. This 1-hour interactive online course covers not only the general underpinnings of the preservation and rehabilitation process, it also outlines the specifics on how to inspect and work with specific materials. Historic structures originate from a wide variety of time periods and areas. Consequently, there are a large variety of different materials examined in this course. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Concrete and Terra-Cotta</b>	Terra-cotta and concrete construction have created some of the world's most distinctive and historically significant structures. Unfortunately, many early concrete and terra-cotta buildings are threatened by deterioration. Effective protection and maintenance are the keys to the durability of these materials-many can be saved through preservation projects involving sensitive repair and replacement. This 1-hour interactive online course outlines the historic background of concrete and terra-cotta, the causes of their deterioration, methods to effectively inspect and analyze their current state as well as techniques of maintenance, repair and replacement. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Energy Conservation</b>	With the dwindling supply of energy resources and new efficiency demands placed on the existing building stock, many owners of historic buildings and their architects are assessing the ability of these buildings to conserve energy with an eye to improving thermal performance. This 1-hour interactive online course has been developed to assist those persons attempting energy conservation measures and weatherization improvements such as adding insulation and storm windows or caulking of exterior building joints. In historic buildings, many measures can result in the inappropriate alteration of important architectural features, or, perhaps even worse, cause serious damage to the historic building materials through unwanted chemical reactions or moisture caused deterioration. This brief recommends measures that will achieve the greatest energy savings with the least alteration to the historic buildings, while using materials that do not cause damage and that represent sound economic investments. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Exterior Additions and Substitutions</b>	The Secretary of the Interior's Standards for Rehabilitation require that deteriorated architectural features be repaired rather than replaced wherever possible. In the event that replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual properties. This 1-hour interactive online course discusses the importance of maintaining historic character and illustrates how and when substitute materials may be used to match the appearance and general properties of the historic material without damaging the historic resource. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Rehabilitating Interiors</b>	While the exterior of a building may be its most prominent visible aspect, or its public face, its interior can be even more important in conveying the building's history and development over time. This 1-hour interactive online course has been developed to assist building owners and architects in identifying and evaluating those elements of a building's interior that contribute to its historic character, and in planning for the preservation of those elements in the process of rehabilitation. The information covered applies to all building types and styles, from 18th century churches to 20th century office buildings. The course discusses historic interior paints, and addresses a variety of materials and features: plaster walls and ceilings; wooden doors, molding, and trim; and metal items such as radiators and railings. It provides background information about some of the types of paint which were used in the past, discusses the more common causes and effects of interior paint failure, and explains the principal factors guiding decisions about repainting, including what level of paint investigation may be appropriate.	1	Fundamental
<b>Historic Preservation: Roofing for Historic Buildings</b>	No matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitably fail. A poor roof will permit the accelerated deterioration of historic building materials-masonry, wood, plaster, paint-and will cause general disintegration of the basic structure. This 2-hour interactive online course covers the historic character of a building, describes how to examine and record the existing roof, considers historic craftsmanship and gives detailed instructions on how to properly research, stabilize, repair and replace historic roofs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Hurricane Damage: Wind vs. Water Determination</b>	In many areas, the insurance industry offers expensive insurance against damage by wind and separate expensive insurance against damage from flooding (FEMA offers inexpensive insurance against flood damage). When a person purchases a home, the mortgage company invariably wants its investment covered by a homeowner's policy. A typical homeowner's policy includes insurance for damage done by wind; however, as the typical home is not imperiled by flooding, a policy does not include insurance from damage due to flood waters. Thus the problem faced by the inspector when a hurricane hits. Was the damage caused by the wind or the water? The author of this course spent 15 months covering the damage caused by hurricanes Katrina and Rita in the Gulf and created this 1-hour online course to educate those who are in that predicament due to the loss of their home or business, and those who are providing assistance to the insurance companies. This course takes a look at three specific scenarios of structure damage from the 2005 Gulf Hurricanes and provides numerous photographic examples. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Hurricane Mitigation Techniques and Inspection</b>	This course will help you better understand what the insurance industry is looking for when a Wind Mitigation Form is submitted, especially as it pertains to the High Velocity Hurricane Zone of Miami, Dade, and Broward counties. We will learn how to identify window and door labels for protection; how to evaluate and categorize roof configurations and determine a roof's geometry; and how to point out the only acceptable secondary water resistance (SWR) products for a roof.	2	Fundamental
<b>HVAC Acoustics</b>	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
<b>HVAC Design</b>	This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today.	1	Fundamental
<b>HVAC Distribution</b>	This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
HVAC HEPA Filters	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental
HVAC System Fans	Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations.	3	Fundamental
Hydraulic Design of Storm Sewers	Storm sewers are the hidden workhorse of our infrastructure. They are designed to ensure our urbanized communities remain dry and maintain safety during extreme events. For this reason it is important that storm sewers are designed with special detail and care. This interactive online course will discuss the design of storm sewer systems and its two core theories, the conservation of mass and energy. A sample spreadsheet will be provided as part of the course to help practitioners in the design of storm sewers.	2	Advanced
IIIRC 7 Hour Mold Health Effects and Science Program	This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are: Lesson 1: More Than Mold -Health Effects Associated With Mold and Water Damage Lesson 2: Health Effects Caused by Mold Lesson 3: Mold Safety and Health Lesson 4: The Science of Mold Lesson 5: Mold Sampling	7	Fundamental
Impacts of the 2010 ADA Guidelines	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
Increasing Building Energy Efficiencies: Policies and Practice	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
Infrastructure 101: Repairing Pandora's Box	What will you find when you open a manhole for repair? For most engineers and utility managers their first introduction to infrastructure management is an emergency call for a manhole collapse or similar catastrophic failure. In part, they can be prepared for this by understanding the root causes of failure and the appropriate types of repair and replacement necessary and by having an appropriate plan of action in place. Preventative and remedial plans require the same level of detail and understanding to avoid recurrence and busted budgets. A manhole repair need not be Pandora's box. In this interactive online course, we will discuss different approaches to infrastructure management, including various materials used in the rehabilitation of manholes. Alternative strategies used to improve safety, reduce public health or environmental risks, and reduce costs will also be covered.	1	Fundamental
Innovative Heat Pump Technology	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
Inspecting for & Filling Out the 4-Point Form	In this course you will learn about the Four Point form where you will learn how to examine four points of a building: the electrical system, the plumbing system, the heating system, and the roofing system. Why do we need a 4-point form filled out? According to insurance underwriter actuaries, these four systems have been statistically expensive to repair or replace. There are statistics showing how the 4-point inspection has saved underwriters substantial dollar amounts. Why should we care? Well, because 80 percent of the population lives in a home that is more than 20-years-old, and if you don't live in one of these homes today, you will eventually as your house grows older. That said, the insurance industry is becoming more proactive when it comes to insuring a home against issues that will cost them money. The boundaries are getting tighter, and the deductibles are getting higher.	1	Fundamental
International Building Code & More: About the Codes	A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Fundamental
International Building Code & More: Code Officials and Code Processes	This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	1	Fundamental



## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Family Residences, Existing Structures and Historic Buildings</b>	This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Finish and Furniture Selection</b>	This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Intermediate
<b>International Building Code &amp; More: Fire Protection Systems</b>	Fire and smoke are the primary threats to the safety of the occupants in a building. Fire and smoke can travel quickly both horizontally and vertically unless special efforts are made to prevent this from happening. The use of rated assemblies in this passive system of fire protection is considered the first step in controlling the spread of smoke and fire. This course will discuss the active fire-protection system and its components, which include detection, alarm, and extinguishing systems, and will provide a fire protection checklist at the end of this course. The overall aim of the fire-protection system is to detect a fire in a building or space, warn the occupants, and suppress the fire until the fire department arrives. If that fire can be detected quickly, occupants have more time to exit the building safely and with less panic. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>International Building Code &amp; More: Means of Egress</b>	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental
<b>International Building Code (IBC) - Assembly Spaces</b>	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code (IBC) - Care Facilities Provisions</b>	This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code Significant Changes to 2012 Edition</b>	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental
<b>International Snapshot on Sustainable Infrastructure</b>	The scientific community overwhelmingly agrees that global warming and changing climate patterns will become more disruptive and have detrimental impacts on essential sectors of our society. These changes, such as extreme weather events, rising temperatures, flooding and droughts, all significantly impact our infrastructure. We are faced with simultaneous threats of aging infrastructure, damage from a changing climate, lack of funding and political paralysis. So how do we respond? Looking around the world, who is taking action now and leading innovations on tackling the challenges of creating sustainable infrastructure systems. The aim of this course is to present a snapshot of this complex dilemma.	2	Fundamental
<b>Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
<b>Introduction to Net Zero Buildings</b>	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Introduction to Sustainable Design and Construction Using Green Globes</b>	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental
<b>Introduction to Sustainable Roof Technologies</b>	Roofs account for one of the largest areas of imperviousness on a site. Impermeable roofs impact storm water quality and quantity, air quality, the urban heat island effect, and the energy needs of the building. This interactive webcast focuses on how we can potentially rethink how we build our roofs to ensure energy efficient buildings, harness energy from the sun to help us reduce our reliance on fossil fuels (nonrenewable energy), manage storm water as a resource, increase air and water quality, and reduce greenhouse gas emissions. We will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. We will conclude with creative applications and site selection and placement considerations of sustainable roofs.	2	Fundamental
<b>Introduction to the ISI Envision Rating System</b>	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
<b>Introduction to Wetlands</b>	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
<b>Irrigation Practices for Commercial and Residential Sites</b>	This Webcast is a full-spectrum discussion of irrigation practices. We'll start with history, discuss fundamentals, move on to proper design, and finish with alternative approaches to traditional irrigation methods. You'll receive valuable information on effective, efficient irrigation methodology for all residential and commercial needs.	2	Intermediate
<b>Land Development Projects: Design of Infrastructure</b>	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental
<b>Land Development Projects: Developing Feasibility Studies</b>	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
<b>Land Development Projects: Grading and Drainage Design</b>	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
<b>Lead Safety in Construction: Keeping You Safe and Compliant</b>	Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
Leak Detection for Roofs	Leak detection is an important job. Utilization of both scientific and artful techniques enables you to detect a leak in the least time with the least work. To do this, you must first understand the roof system that you are looking at, and know all its components and their function. This 1-hour interactive online course details specific techniques of detecting leaks in various waterproofing media, with an endeavor to give the professional practical and usable techniques that they can employ in the course of handling this important job. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
LEED v4 - Certified Buildings Under the O&M and BD+C Categories	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
LEED v4 - Operations and Maintenance	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
LEED v4 and Data Center Construction	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental
LEED v4 and the Future of Green	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criterions and its impact on the future of sustainable new construction.	1	Intermediate
LEED v4 for Commercial Office Buildings	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
LEED v4 for Existing Buildings: Operation & Maintenance (EBOM)	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
LEED v4 for Healthcare Facilities	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
LEED v4 for Hospitality Projects	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
LEED v4 for Interior Design + Construction	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
LEED v4 for New Construction Projects	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
LEED v4 for Retail Projects	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
LEED v4 for School Buildings	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>LEED v4: Neighborhood Development</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals -- from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
<b>LEED v4: Residential Homes</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental
<b>LEED: Water Efficiency</b>	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate
<b>LID Technologies</b>	A low-impact development (LID) design approach is defined as a combination of hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. This course will provide an overview and introduction into the philosophy, objectives, various design approaches, economic and environmental benefits, and management practices of low-impact development. Specifically, course will demonstrate how to develop land and maintain the predevelopment hydrologic regime by using current structural and nonstructural storm water management technological approaches.	2	Fundamental
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microsoft Teams Essentials</b>	Learn To Collaborate and Communicate with Microsoft Teams Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes).	1	Fundamental
<b>Microsoft To Do Essentials</b>	Organize Your Day Track Your To-Dos and Focus on Whats Important The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks.	0.5	Fundamental
<b>Minimum Standards and Practices for Florida Mold Assessors and Remediators</b>	This two-hour recorded presentation is an overview of the Minimum Standards and Practices for Mold Assessors and Mold Remediators as specified in the State of Florida's Rules 61-31.701 and 61-31.702, regulations for Mold Related Services. This course is not limited to mold inspectors and mold remediators. Others that will find this course useful include property owners performing their own mold inspections/mold removal, architects, general contractors and other professionals that find themselves involved in a mold assessment or mold remediation project as part of their normal scope of work, even though they are not holding themselves out for hire as a mold assessor or mold remediator. Due to the amount of material in Florida's Standards and Practices Rule to be covered in this course, this course assumes you have some basic knowledge of the material.	2	Fundamental
<b>Mold Basics</b>	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental
<b>Mold Contractors' Standard of Care</b>	In the absence of a common regulation, the mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? This course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure.	1	Fundamental
<b>Mold Documentation and Report Preparation</b>	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
<b>Mold Remediation</b>	Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Mold Remediation Equipment</b>	The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	1	Fundamental
<b>Mold Reporting for Mold Assessment and Mold Remediation Projects</b>	This course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap.	3	Fundamental
<b>Mold Safety and Health</b>	Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	1	Fundamental
<b>Mold Sampling</b>	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
<b>Montana 4 Hour 2017 NEC Changes: Program 1</b>	This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC) and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial	4	Intermediate
<b>Montana 4 Hour 2017 NEC Changes: Program 2</b>	This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements	4	Intermediate
<b>More Than Mold - Health Effects Associated With Mold and Water Damage</b>	Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health.	3	Fundamental
<b>Movement Joints in Brick Masonry</b>	Brick masonry is one of the most durable exterior building materials in use around the world. It is a preferred product in most climate areas, from subtropical to near arctic, and for buildings from simple residences to monumental international architecture. When Mies van der Rohe proclaimed God is in the details, he may very well have been thinking of masonry construction. Masonry's long term success depends on designers and installers understanding the physics of masonry movement and the time-tested methods of accommodating that movement. This need is particularly important in commercial and institutional buildings due to their more rigid structural construction and the size of their walls. This 1-hour online interactive course discusses a number of different causes of brick movement and the methods that can be used to accommodate this movement.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Multistage Centrifugal Pump Maintenance</b>	Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single-stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.	1	Intermediate
<b>Nanotechnology and Sustainability</b>	Are you ready for your world to change due to the contributions of nanotechnology? You can be confident in your understanding of nanotechnology, its impacts, and its relationship to sustainability. You can reap the benefits for yourself and your clients. This webcast gives you the potential that nanotechnology, specifically nano-products, brings to sustainability. Topics include new energy creation and storage opportunities, improved product durability, water quality improvement, pollution mitigation, as well as benefits and potential dangers of nanotechnology.	1	Intermediate
<b>Natural Gas Systems - Sizing and Design Consideration</b>	What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes, Knowing the requirements of the natural gas utility supplier, Venting requirements, Pipe identification and labeling requirements, Pipe support requirements, Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, and Selection of piping material.	1	Intermediate
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements</b>	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3</b>	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
<b>OK Roofing Contractor: Introduction to Sustainable Technologies and Roofing Materials - Concrete Tiles</b>	Part 1 will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. Concrete tile is one of the most durable roofing materials available. Part 2 of this online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail.	4	Intermediate
<b>Oklahoma 6 Hour 2017 NEC Changes Program</b>	This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314.	6	Intermediate
<b>Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements</b>	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
Oregon Electrician 2020 NEC Changes: 2 Hour Program #2	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
Oregon Electrician 2020 NEC Changes: 2 Hour Program #3	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
OSHA Safety: Introduction to Powered Industrial Trucks	Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles.	1	Fundamental
OSHA Underground Construction	This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: <ul style="list-style-type: none"> <li>Underground Construction Part I</li> <li>Underground Construction Part II</li> <li>Caissons &amp; Cofferdams</li> <li>Compressed Air</li> </ul> After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
Overcurrent Protection I - Short Circuit Calculations	This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
Overcurrent Protection II - Coordination	This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
Parking Lot Design: Elements of Design	This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.	2	Advanced
Parking Lot Design: Essentials	This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate



## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Parking Lot Design: Parking Studies</b>	This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>Personal Protective Equipment For Mold Remediation Contractors and Consultants</b>	From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment.	1	Fundamental
<b>Phasors and AC Circuit Analysis</b>	This course will build a foundation of skills you can use to become familiar with concepts involved with fault load and load flow studies, along with arc flash analysis in electrical power distribution systems. This course is also an ideal refresher course for electrical engineers preparing for the PE Exam (ECE - Power). Basic concepts covered in this course include: The sinusoidal forcing functions and phasor notation Phasor relationships for resistors, inductors, capacitors and the concept of impedance Analysis of single and poly-phase electric circuits Power in single-phase and balanced three-phase circuits Per-unit quantities and changing the base of per-unit quantities	2	Fundamental
<b>Phytotechnologies: Using Plants to Clean Up</b>	Phytotechnologies are a set of techniques that make use of plants to achieve environmental goals. This course will highlight the advantages and limitations of phytotechnology—whereby plants uptake and remove contaminants. We will also cover the cost-effective, natural cleanup methods that have a growing role in the following areas: remediation of environmental contaminants, eco-restoration, engineered wetland systems, and biofuels. The course will conclude with a discussion of current scientific case studies.	3	Fundamental
<b>Pipes and Valves: Basic Pipefitting Skills</b>	Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square.	2	Intermediate
<b>Pipes and Valves: Calculating Offsets</b>	Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets.	2	Intermediate
<b>Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe</b>	Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method.	2	Intermediate
<b>Pipes and Valves: Installing Pipe Hangers and Supports</b>	Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors.	2	Intermediate
<b>Pipes and Valves: Installing Screw and Welded Pipe</b>	Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping.	2	Intermediate
<b>Pipes and Valves: Pipes and Pipe Fittings</b>	This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe.	2	Intermediate
<b>Pipes and Valves: Special Calculations</b>	Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures.	2	Intermediate
<b>Pipes and Valves: Valve Maintenance</b>	This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it.	2	Intermediate
<b>Pipes and Valves: Valve Types and Operation</b>	This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated.	2	Intermediate
<b>Plan Review Techniques for Infrastructure Projects</b>	Infrastructure projects take an immense amount of planning - drawings and specifications, design and construction teams, and communication. You can be the effective coordinator of a successful project if you know the right plan review techniques and use them expertly. This interactive online course teaches you those techniques and gives you the checklists you can start using right away to achieve your goals in completing an infrastructure project you can be proud of.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
Plumbing Using PVC Pipe	There are numerous different types of PVC pipe, some of which are acceptable for use inside buildings and some which are acceptable only outside buildings. PVC pipe is common for drains and vent pipes, but less common for pressure pipe within buildings. This course will discuss the various types of PVC pipes that are available and where they may be used, provide information on proper installation procedures, and discuss the fittings that can be used to connect PVC to other pipe materials.	1	Fundamental
Positive Displacement Pump Maintenance Basics	The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures.	1	Intermediate
Power of an Energy Audit	An energy audit is often the first step in energy consumption reduction. This interactive webcast will introduce green building professionals to the importance of conducting an energy audit to assess energy use and measures to implement for energy conservation. We will discuss the four levels of analysis, including: benchmarking, walk-through audit, detailed/general energy audit, and investment-grade audit. This course will also focus on how auditing can help identify cost-saving opportunities and prioritize improvements. An energy audit is an inexpensive yet powerful way to reduce costs and improve performance. Energy audits also are an important step to help meet greenhouse gas reduction goals. Finally, we will focus on the competitive positioning of energy auditing by touting successes and attracting and engaging more customers.	2	Fundamental
Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
Preventing Mold Growth	Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth.	1	Fundamental
Pricing as a Professional	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Principles of At-Risk Construction Management	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
Principles of Design-Build	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental
Principles of Professional Construction Management	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
Project Management Essentials	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
Project Team Management	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental
<b>Protecting People Against Terrorist Attacks: Structural Design Criteria</b>	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
<b>Protecting Water Systems Through Backflow Prevention</b>	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
<b>Pumping Stations - Pumps, Motors and Electrical Systems</b>	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental
<b>Pumps: Fundamentals of Centrifugal Types</b>	This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system.	2	Intermediate
<b>Pumps: Operation of Centrifugal Types</b>	This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump.	2	Intermediate
<b>Pumps: Performance and Inspection</b>	This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations.	2	Intermediate
<b>Pumps: Reciprocating Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>Pumps: Rotary Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>PVC Pipe - Which type should I use?</b>	Poly vinyl chloride (PVC) pipe is used for many applications, including water lines, sewer lines, irrigation, and storm drainage. There are many different types and classes of PVC pipe, made for many different applications. There are many more similarities in PVC than there are differences, but it is important for engineers and architects that use these products to understand the differences. This 1-hour interactive online course is intended to shine some light on the use of products such as SDR 35, C 900 and Schedule 40 pipe. This course is not intended to be an endorsement of PVC for all applications but rather to provide the student with better information upon which to base a design decision. Some of the tables used in this course must be displayed using Microsoft Word. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial</b>	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Reinforced Concrete Tilt-Up Panels</b>	The term tilt-up panel is almost self-descriptive. This method of construction has been utilized through history, but only relatively recently have the advantages become economically viable. A combination of labor savings, speed of construction, and good finish quality, has made tilt-up panels more competitive. The following course will explain the tilt-up panel method of construction, itemize some of the current advantages of this construction method, and give an example of the design of a typical warehouse type building constructed of tilt-up walls.	1	Intermediate
<b>Reinforced Masonry Design</b>	What is reinforced masonry? Reinforced masonry is often used for building foundations and exterior walls, for resistance to earthquake and wind loads, and where compressive resistance to loads is required. Where unreinforced masonry has some limited uses, reinforced masonry can be used in most building applications under most loading conditions. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This interactive online course will focus on reinforced masonry design and how the use of this design method is employed everyday for buildings, foundations, and retaining walls. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
<b>Report Writing for Home Inspectors</b>	Report writing is an essential element of the home inspection process and it is important that these reports accurately communicate the findings of a home inspection. A well-written report will result in satisfied customers, more referrals, and most importantly, will help keep the inspector out of court and ward off any potential lawsuits. This course will teach home inspectors how to effectively write and communicate the findings of a home inspection in a written report. This course will help the home inspector in choosing the best report writing format, key words to use in the report, and how to protect the inspector from possible legal action.	1	Fundamental
<b>Residential Green Building: Design, Construction, and Accreditation</b>	Green Building is rapidly becoming mainstream, mostly due to increasing environmental concerns, a desire to develop healthier structures, and increasing regulation from the permitting authorities. This 4-hour interactive online course starts by debunking many green building myths and then moves into a comprehensive discussion of its elements. The course takes a close look at green building in relation to many aspects of design and construction including issues dealing with sites, landscaping, foundations, frames, exterior finishes, plumbing, appliances, insulation, ventilation, windows, finishes, and flooring. The course wraps up with information on testing, certification, and accreditation, including a look at the LEED program and the NAHB Green Home Certification Program. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Green Remodeling: Design, Construction, and Certification</b>	This course will introduce residential construction professionals to green building and renovation strategies, practices, and materials. In addition to its positive environmental impacts, green building ultimately results in a healthier and a more affordable home for clients. If a program is implemented effectively, it's also good for the residential remodeler's financial bottom line. The green building and remodeling market continues to grow, providing great opportunities for building professionals to develop and expand their businesses. This course provides a comprehensive discussion of the unique aspects of green remodeling with a focus on building evaluation, deconstruction, handling of hazardous waste, materials recycling and reuse, energy conservation, indoor air quality, use of environmentally safe products, design principles, system planning and construction best practices. The course also provides an overview of green building certification programs, green building professional accreditation programs, and incentives available from government agencies and utilities. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Safety Essentials</b>	As you may or may not know, the top four causes of construction fatalities are Falls, Struck-By, Caught-in/between and Electrocutions. These hazards are ever present in the residential home building process and you are not exempt from these many dangers. This interactive online course will cover various safety topics and will explore how the lack of adherence to these standards are risk factors to the top four construction hazards. Please note that this course is for the express purpose of training workers on residential construction sites only.	1	Fundamental
<b>Retaining Wall Design - Part 1</b>	This 2-hour online course is part 1 of a two part course for analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 involves the description of retaining walls, a review of the soil mechanics necessary to calculate the forces acting on the wall, and resisting the movement of this structure. Further, this course describes the procedure for evaluating the stability of the retaining wall. The body of this course is presented in a word document format which you must download. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Retaining Wall Design - Part 2</b>	This 2-hour online course is part 2 of a two part series on analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 described the process of determining the stability of this type of structure, while this part is involved with determining the internal forces and stresses of the cantilever retaining structure and selecting sizes and spacing of steel reinforcing and dimensions of a reinforced concrete cantilever retaining wall. Appropriate sections and equations of the American Concrete Institute's ACI318 (latest edition) will be referenced in the design process. Due to the extensive amount of math used in this course, it is presented in a Word document format which must be downloaded by the student. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing - Flexible Membrane Edge Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading and the most critical area for wind loading is the edge of the roofing system. This 2-hour interactive online course provides a design guide for edge systems used with low sloped flexible membrane roofing systems. Another RedVector.com course is available on materials used for flexible membrane roofing and additional courses are available on other design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Roofing - Flexible Membrane Wind Load Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading. This 2-hour interactive online course provides a design guide for low sloped flexible membrane roofing systems. It also includes several design examples that go through the entire design process for wind loading. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Roofing Materials - Asphalt Shingles</b>	One of the most commonly used materials available for roofs is asphalt shingles. This 2-hour interactive online course covers a variety of topics related to asphalt shingles, such as underlayment requirements, ventilation and potential problems with shingles. Asphalt shingles are very common on residential roofs in much of the United States and are also used on smaller commercial buildings. Because they are so common, proper use, specification and design of asphalt shingle roofs are often overlooked. This course will provide guidance for designers of new asphalt shingle roofs and some guidance on replacement requirements for existing roofs. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Concrete Tiles</b>	Concrete tile is one of the most durable roofing materials available. This 2-hour interactive online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Flexible Membranes</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. The materials used for membrane roofs include thermoset materials, thermoplastic materials and modified bitumen materials. This 3-hour interactive online course covers an introduction into these materials and products used with them, including fasteners, insulation materials, adhesives and fabrics. Additional RedVector.com courses are available on design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Safe Work Permits</b>	This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc.	1	Intermediate
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Seawalls and Boat Docks for Home Inspectors</b>	In this course we will cover the inspection of seawalls, boat docks and boatlifts, as well as davits. We will also take a look at the materials used for construction, both used in the old days as well as what's currently being done or new. I'll show you photos of well-constructed and maintained seawalls, as well as pictures of the problems I've encountered while inspecting properties. We will review the anatomy of a seawall, a boat dock, and boatlifts. And I'll give you inspection tips from my experience as we go through the course.	2	Fundamental
<b>Seismic Diaphragm Demands</b>	This course will cover the development of the seismic diaphragm forces based on the IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.10. The demand on a diaphragm during a seismic event is not well understood. Using the Equivalent Lateral Force, this course will review the forces on the diaphragms and compare them to the story forces.	1	Intermediate
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Set-Up of Engineering Controls for Mold Remediation Projects</b>	This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant.	1	Fundamental
<b>Site Planning and Design</b>	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Site Utility Design: Commercial Buildings</b>	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Small Scale and Micro Scale Wind Applications</b>	Exactly how can we harness the power in wind? Do you need a giant wind turbine? This interactive online course provides an overview of wind technology at a much smaller scale. Topics covered include small scale and micro scale wind technologies, including: applications, estimating wind turbine production, and siting considerations. We will also detail the process for installing small wind turbines and small wind system components and explore the newest research focused on micro (nano) wind technology.	2	Intermediate
<b>Soils and Foundations: The Low Down on Dirt</b>	Soils issues and ineffective water management methods create serious problems with foundation systems and structures. Understanding the core soil problems faced in the construction industry and methods to overcome them allow you to avoid the associated issues. This interactive online course will teach you about some of the most common issues found with soils and how to overcome them. You will also learn about ICC codes that govern site inspections. Additionally, you will learn about geotech reports and best practices when assessing soil conditions.	2	Intermediate
<b>Solar Panels for Home Inspectors</b>	This course applies to the application and evaluation of solar panels for water heaters, pools and spas, and photovoltaic cells. It will give you a brief overview of how they work and how they are evaluated, including installation and components. We will discuss the different kinds of solar panels found and how they connect to various system components. We will also identify potential and common problem areas with these panels, typically system defects. Terms for intelligent report writing will be part of this class, and how electricity is generated will also be explained.	2	Fundamental
<b>Stormwater Discharges from Construction Activities</b>	Stormwater discharge from construction activities can have a significant impact on the water quality of rivers, lakes, and coastal waters with pollutants like sediment, debris, and chemicals. Stormwater discharges from construction activities that impact one or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. This two-hour course discusses the importance of stormwater controls on construction sites as well as a detailed look at specific construction-related pollutants. This course also provides participants with an overview of the new NPDES 2012 Construction General Permit (CGP), which is an update to 2008 CGP. In order to implement the new Effluent Limitations Guidelines and New Source Performance Standards for Construction and Development point sources (C&D rule), construction site operators must meet new restrictions on erosion and sediment control, pollution prevention, and stabilization.	2	Advanced
<b>Stormwater Harvesting: A Green Concept</b>	Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.	3	Intermediate
<b>Stormwater Management: Low Impact Development (LID)</b>	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to help combat the significant stormwater problems produced by traditional development methods. A number of these methods fall into the category Low Impact Development (LID) which focuses on water resource and natural resource protection. This 3-hour interactive online course describes a number of the LID methods that have been proposed. It includes information on applicability, design considerations, limitations, maintenance considerations and pollutant removal effectiveness of these methods. The course is based on guidance provided by the US EPA.	3	Intermediate
<b>Structural Design Philosophies ASD &amp; LRFD</b>	Structural engineering design philosophy is based on determining the demand on an element and designing that element with the capacity to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	1	Intermediate
<b>Structural Insulated Panels (SIPs)</b>	Structural Insulated Panels (SIPs) are a new sustainable structural panelized building material that can be used for roofs, floors, and wall panels. This course will examine various uses and structural limitations on the materials. An exploration of code requirements and constructibility will be included. Design examples will illustrate cost effective approaches to incorporating this new sustainable material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Intermediate
<b>Structural Steel - An Introduction</b>	Are you faced with a project that requires an understanding of structural steel? Do you know the standard steel shapes and how they are connected to erect a building? What is that ASTM specification on the Mill Cert and how does it apply to steel selection? When should you choose structural steel over other materials? This course introduces the student to the basic fundamentals of structural steel.	1	Fundamental
<b>Stucco in Home Building for Home Inspectors</b>	This presentation applies to the application of stucco and bath on exterior walls and ceilings only. We will cover the different types of Stucco applications, such as on wood frame and concrete block houses and with EIFS applications. You will learn how to properly install metal lath and identify potential problem areas in installation. We'll show you critical areas to investigate and not only what to report, but how to report it. Examples of issues and defects will be presented.	2	Fundamental
<b>Surge Protection</b>	Power surges are a serious ongoing problem causing major damage in the U.S. including losses of data. The solution is surge protection. You can be a successful provider of that solution. First, you need to know what a surge is, what causes it, and the best technology to protect against it. This webcast will teach you about surges so that you can understand what you are dealing with. This course will also introduce you to the types of protection available as well as installation recommendations.	2	Intermediate
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Sustainable Design: Eco-efficiency of Roofing Insulation Systems</b>	This 1-hour interactive online course explores several popular roofing insulation systems - Expanded polystyrene (EPS), Polyisocyanurate (Polyiso), Extruded polystyrene (XPS), and Sprayed Polyurethane Foam (SPF) - and discusses the influences each one has on sustainable design. It is divided into the following sections: Sustainable Development, Insulation Systems, Technical Aspects, Environmental and Economic Aspects, Appendix. The course begins with an introduction to sustainable development, compares different plastic insulation systems, then follows up with some technical points on each system. Lastly, eco-efficiency analysis is explained and the environmental and economic aspects of each system are discussed.	1	Fundamental
<b>Sustainable Sites Initiative and the SITES® Rating System</b>	How are you planning on the development of your next site? Have you planned on how you can maintain a healthy ecosystem on your site? This interactive online course introduces course participants to the Sustainable Sites Initiative (SITES®), which is an interdisciplinary effort and framework for the SITES® Rating System based on the concept of ecosystem services, or the benefits that people enjoy from healthy natural systems promoting sustainable land development and management practices. This course includes a discussion of the history and participating entities of the SITES effort. This course will also provide an in-depth study of SITES® Rating System national guidelines and performance benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection for sustainable land design, construction and maintenance practices. This course will conclude with case studies of certified sites fostering resiliency, ecosystem services, human health, materials, soils/vegetation, and water.	2	Fundamental
<b>Sustainable Solutions: Air Pollution</b>	Welcome to the course Sustainable Solutions: Air Pollution. In this course we will explore the relationship between air pollution and site development. Major pollutant sources and their impacts will be discussed along with strategies for reducing embodied energy and creating favorable microclimates that benefit the site and surrounding area. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	2	Fundamental
<b>Sustainable Solutions: Human Health and Well-Being</b>	This course emphasizes the importance of using site design to increase physical activity within a community and provides strategies for doing so. It addresses the subject of maintaining positive mental health through the integration of natural landscapes. Strategies for implementing opportunities for social interaction among adults and spontaneous play among children are also discussed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Invasive Species</b>	A foundational principle of an ecological education is the notion of a species' native status. The idea has to do with where a species evolved and was able to establish without the aid of humans. At the other end of the spectrum, an invasive species is defined as one that is nonnative to a particular ecosystem and whose introduction into that system causes or is likely to cause economic or environmental harm or harm to human health. In this course, we will learn about explore the characteristics of an invasive species and cover methods of how to control and prevent invasive species, such as encouraging high-diversity plant communities, limiting habitat fragmentation, maintaining a healthy disturbance, minimizing resource input, and utilizing an Integrated Pest Management (IPM) plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Loss of Biodiversity</b>	Biodiversity refers to the richness and distribution of species living in a given area. This course will deal with strategies to effectively mitigate negative impacts to habitat and to restore damaged or degraded natural systems on-site. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Urban Flooding and Water Pollution</b>	As the U.S. was discovered and populated, people located their families and businesses near water. Living near water brings many opportunities and some inconveniences. In this course we will review some basics about flooding and water pollution as well as explore some specifics about these catastrophes and the sustainable solutions we can employ to prevent them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Water Shortages</b>	Over the next forty years, the global population is expected to increase from 6 billion to an estimated 9 billion, yet the world's water supply is constant. Only 3 percent of the global water supply is fresh; the majority of it is locked in ice or stored deep in the earth, making its extraction very expensive. The remaining 97 percent is found in the oceans and is too salty for human consumption, irrigation, and industrial uses. Water from the oceans can be processed; however, desalination is an energy-intensive practice. In this course we will explore site strategies for reducing water waste and recharging groundwater supplies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Urban Design: High Speed Rail</b>	High Speed Rail is an increasingly popular means of rapid passenger transit, capable of speeds up to 250 miles per hour. As demand for more efficient, eco-friendly means of mass transit increases, so does the appeal of high speed rail as a more prominent means of travel in the United States. This 1-hour webcast discusses key concepts of High Speed Rail and compares it with other popular modes of transportation.	1	Intermediate
<b>Swimming Pools: Coordination of Architects &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: <ul style="list-style-type: none"> <li>• Civil design, grading, drainage, parking and utility extension</li> <li>• Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium</li> <li>• Safe ventilation of mechanical spaces</li> <li>• Landscape construction for planters, lighting, decking, walkways, fencing and irrigation</li> <li>• Structural designs for supporting foundations including piers</li> <li>• Geotechnical concerns for soil stabilization and high water table</li> <li>• Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site</li> </ul> This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Swimming Pools: Coordination of Contractors</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors &amp; Building Trade Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Engineers &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Introduction to Aquatic Design &amp; Construction</b>	Most architects, landscape architects, civil and mechanical engineers, construction managers, general contractors and their clients only have infrequent encounters with projects containing swimming pools or other aquatic features. College undergraduate and graduate level studies rarely address the subject of swimming pools at all. As a result, most designers and builders have never had to develop the necessary resources in-house for design and construction, and have sometimes relied upon less than reliable sources of information during their project programming. This 2-hour online course will provide the design team members with an overview of the specialized language of pools, and an improved understanding of the problems encountered in aquatic design. Later courses in this series will develop design criteria, coordination issues, and construction methods. This initial course is intended to expand the knowledge-base for non-aquatic designers and improve their communications with aquatics specialists who only occasionally join the rest of the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Swimming Pools: Mechanical and Hydraulic System Design</b>	This 2-hour online course is intended to provide the engineer with basic understanding of hydraulic systems design for swimming pools. Our design process will be cumulative, combining the physical elements of pool design, the regulations governing swimming pools, and engineering criteria all into one process. As they say, you don't want to know how sausage is made! While the engineer may recognize the simple formulae used, he or she may not be familiar with how swimming pools work in the first place. It is the expressed objective of this course to remedy that lack of information and put all that stuff learned in engineering school to work designing pools that are not only fun but safe. Prerequisite Prior to taking this course students should have a passable knowledge of basic and applied fluid mechanics at the college level and/or extensive field experience in the installation and operation of closed-loop pumping systems. The course is not a masters thesis in mechanics, dynamics or thermodynamics. It is a straight forward application of basic fluid mechanics to an everyday problem. If you are looking for superior academic analysis, formula derivation and integral calculus, you're living out a recurring nightmare of mine and are in the wrong classroom! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental



## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>TDLR TEST Basic Electricity I</b>	This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated.	2	Intermediate
<b>Texas Air Conditioning and Refrigeration Contractors Administrative Rules - Title 16, Chapter 75</b>	This informative interactive online course explores the state's administrative rules for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. As an ACR contractor in Texas, you studied the laws and rules to pass your licensing examination. One aspect of these laws and rules is that you must take a one-hour course each year to stay up to date and maintain your license. ACR Contractors are professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This course satisfies the continuing education requirement of the TDLR for one hour of training on the rules and regulations for contractors as part of the overall continuing education requirement. Contractors should not only include these standards in everyday actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas Air Conditioning and Refrigeration Contractors Occupations Code - Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing the Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas Electrician 4 Hour CE Program #5</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #6</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #7</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: 16 Texas Administrative Code, Chapter 75</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: Title 8, Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing Title 8, Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>The Importance of the International Building Code (IBC) in the Design and Construction of Safe Buildings</b>	This three-hour webcast gives participants an introduction to the International Building Code (IBC), which is a model building code developed by the International Code Council (ICC). The IBC Codes provide minimum safeguards for people with regard to building safety. Focus will be on the importance of the code in regard to fire prevention, ingress/egress, and structural stability. Discussions will also include additional codes (e.g., International Plumbing Code) that when referenced by the IBC are adopted, as well. This webcast distills the IBC down to relevant code sections, chapters, and working examples that illustrate fundamental code concepts.	3	Fundamental
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental
<b>The Science of Mold</b>	Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants. This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment.	1	Fundamental
<b>The WELL Building Standard</b>	How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied.	3	Fundamental
<b>Transformers I - Electrical Characteristics</b>	This 1-hour interactive online course is the first part of a series of courses on electric distribution transformers. In this part we will look at the basic electrical characteristics of transformers including how magnetism is used to create a voltage within the transformer. Characteristics such as how a transformer works, how the primary and secondary voltages and currents are related, how to calculate the transformer's regulation and efficiency, as well as the factors contributing to losses within the transformer are reviewed. Diagrams are presented that show the basic construction of a distribution transformer and the course includes a description of the common designs in use today such as shell-form designs, core-form designs, and the various three-phase designs. The course includes a multiple-choice test at the end.	1	Advanced
<b>Transformers II - Standards</b>	This 2-hour interactive online course is the second in a series of courses on electric distribution transformers. In this course we will review the various methods to classify transformers including cooling methods, protection schemes, and installation types. This course discusses transformer types, including oil filled and dry types, as well as the different types of transformer oils that are used. Both conventional and CSP transformers are reviewed. Standards, such as the insulation standard, short-circuit withstand, voltage rating identification, and terminal markings, are reviewed. Finally, transformer loading issues and methods to evaluate the cost of operating distribution transformers are discussed. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transformers III - Connections</b>	This 2-hour interactive online course is the third in a series of courses on electric distribution transformers. In this course, we review the application of single-phase transformers in both single-phase installations and three-phase installations. Other factors such as the available fault current at the secondary of a transformer are reviewed as well as how ferroresonance impacts the operation of distribution transformers. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transmission and Distribution: Overhead Distribution Systems</b>	The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed.	1	Intermediate
<b>Transportation Engineering: Highway Capacity</b>	Highway accidents result in thousands of deaths a year. Knowing how highway capacity analysis is used in the design of safe and efficient roadway facilities is essential to the health safety and welfare of the general population. This interactive online course will teach you about the fundamental concepts of highway capacity analysis. You will learn about transportation system elements, types of roadway facilities, design vehicles, the concept of level-of-service, traffic volume parameters, and speed parameters and how they are relevant in analyzing the capacity of roadway facilities.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Transportation Engineering: Introduction to Transportation, Planning, and Funding</b>	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental
<b>Transportation Engineering: Mass Transportation</b>	Mass transportation (or public transportation) is any form or shared-passenger transportation service available for use by the general public. The types (or modes) of mass transportation include airline service, bus (commonly referred to as transit or transit service in the United States), paratransit (van service), light rail (also known as tram), commuter rail, heavy rail, ferries, as well as other modes such as motorized tricycles (often referred to as auto rickshaws) that are common and widely used in mostly developing and emerging economies. New and innovative modes of mass of transportation include Maglev trains. The focus of this interactive online course will be on modes of mass transportation and mass transportation systems common within the United States, in particular transit, paratransit, light rail, commuter rail, and heavy rail.	2	Intermediate
<b>Understanding Concrete's Environmental Advantage</b>	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental
<b>Understanding Construction Claims</b>	This 2-hour interactive online course provides a basic overview of the five different types of construction claims that a contractor might have against an owner: Delay, Changed Work, Labor Productivity Loss, Acceleration, and Termination. It defines each type of claim and the subcategories within each, as well as defining the crucial concepts associated with each. It also provides a basic introduction to the various methods for calculating damages related to each type of claim, emphasizing the importance of the project schedule as an evaluation and analysis tool. The course material is supplemented with summaries of actual cases to illustrate how courts and boards rule on the different types of construction claims. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Understanding Fire Sprinkler Drawings and Calculations</b>	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
<b>Understanding Moisture Intrusion and Its Impact on Mold Growth</b>	The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	1	Fundamental
<b>Understanding the Energy Independence and Security Act</b>	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - StormWater Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
<b>Uninterruptible Power Supply (UPS) System Efficiency</b>	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Urban Drainage - Design of Storm Water Detention and Retention Facilities</b>	This course will cover the information presented in Chapter 8 of the Hydraulic Engineering Circular by examining the procedures for the design of storm water detention and retention facilities in conjunction with highway design. This course provides a comprehensive and practical guide for the design of storm drainage systems associated with transportation facilities. Design guidance is provided for storm drainage systems which collect, convey, and discharge storm water flowing within and along the highway right-of-way. Methods and procedures are given for the hydraulic design of storm drainage systems.	2	Advanced
<b>Urban Sprawl Laws</b>	The social, environmental, and economic state of our communities, as well as the health of our population, is affected by our urban environment. Historically, the central objective of planning laws and land use regulations was to safeguard negative consequences associated with the built environment. Concern about rapidly developing urban regions has prompted state legislatures to pass planning laws to manage urban development. This interactive online course will focus on traditional growth management regulations and development restrictions employed in the local, regional, and state policy-making arenas. This course will also discuss a new approach heralded by California in Senate Bill 375 that focuses on regulating air quality standards through land development patterns. The types and functions of both traditional and new planning reform laws are the focus of this course.	2	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
Use of Steel in Design & Construction	This 1-hour interactive online course discusses the use of steel in design and construction, with the primary focus of the design segment relating to design of buildings, and not entailing design of the myriad of other things in modern society that are made from steel. We will start with a look at the methods of manufacturing various types of steel. The resultant physical characteristics of different types of steel will be examined to understand those applications where the use of different steel is recommended. Techniques for proper use and erection of steel in buildings will be discussed, in conjunction with design considerations. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Virginia 2017 NEC 3 Hour CE Program #1	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #2		3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #3	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #4	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate
Walkable Communities	You can be a leader in the growing trend of communities that support more social interaction, physical fitness, and diminished crime and social problems. You can develop economically and naturally sustainable urban environments that lead to whole, happy, healthy lives for the people who live in them. This webcast gives you the information and tools you'll need to set and reach those goals. You'll learn preferred choices of transportation, street design, and guidelines for developing walkable (non-motorized) communities.	1	Intermediate
Warning Signs and Labels (BBWSALOCEN)	This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Wastewater Treatment and Reclamation: Asset or Liability	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
Water-Based Fire Suppression Systems	With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost \$12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project.	1	Fundamental

## Construction & Trades (Continued)

Title	Description	Hours	Level
<b>Wind Design Using ASCE 7-10</b>	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
<b>Wood Design Using the 2012 Wood Frame Construction Manual</b>	Knowing the correct wind speed for the area in which you are building a wood frame structure is crucial to the safety of the building's inhabitants. This interactive online course will describe how to use the 2012 version of the American Wood Council's Wood Frame Construction Manual (WFCM). This version incorporates the use of wind speed maps from ASCE 7-10 and the design of both vertical and lateral load paths using the WFCM. There are many nuances to the correct use of this manual and many of these will be covered to help the practitioner correctly use this document that is referenced in the International Building and Residential Codes.	3	Intermediate
<b>Work Practices of the Mold Remediation Contractor</b>	Work practices of the mold remediation contractor are the everyday hands-on methods that ultimately make a project succeed or fail. This course will provide the keys to assessing mold contaminated materials and contents, and assist the remediation professional in the decision making of whether they should be disposed or cleaned, and how to effectively clean them.	1	Fundamental
<b>Working Effectively with Building Officials and Inspectors</b>	Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials.	1	Fundamental

## Construction & Safety

Title	Description	Hours	Level
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Residential Code (IRC) Update</b>	It is important to have an up-to-date residential construction code addressing the design and construction of one- and two-family dwellings and townhouses to protect the health and safety of the public as well as provide affordable housing. There have been key changes made to the International Residential Code® (IRC®) since the 2009 edition. This course will identify important changes in the IRC from 2009 to 2012 edition. Participants will be presented with those changes that will most impact their use of the code when they adopt the 2012 IRC. The learner will receive an overview of the most important code changes. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Energy Conservation Code - Commercial Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for commercial buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of commercial building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in commercial building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Energy Conservation Code - Residential Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for residential buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of residential building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in residential building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
2015 International Fire Code Essentials – Hazardous Materials	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Site and Building Services	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code Essentials – Special Processes and Building Uses	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Fire Code®: Significant Changes	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
2015 International Residential Code (IRC): Significant Changes	This course reviews and analyzes selected significant changes from Chapters 1-4 of the 2015 International Residential Code (IRC). It assists building officials, plans examiners, inspectors and design professionals in identifying the specific code changes in Chapters 1-4 that have occurred and understanding the reason behind the changes. This course uses the Significant Changes to the International Residential Code, 2015 Edition. Topics include changes to accessory structure scoping, guard height, wind speed and exposure category determination, discussion of a new standard for sunrooms, new tables for minimum footing size, clarification of townhouse separation, emergency escape and rescue openings, stairway illumination and fire protection of floors, and a new requirement for a written statement of the reason for disapproval of an alternate material or method. Developed in Partnership with the International Code Council.	3	Intermediate
2015 International Residential Code® Essentials – Code Administration and Site Development	Did you know that the International Residential Code® (IRC) is a comprehensive, stand-alone residential code that establishes minimum regulations for the construction of one- and two-family dwellings and townhouses up to three stories in height, including provisions for fire and life safety, structural design, energy conservation and mechanical, fuel-gas, plumbing and electrical systems? These codes serve primarily to protect the safety and welfare of the building occupants and the public. In addition to providing a better understanding of the code provisions and their development, the additional content of this course is organized to correspond to the order of construction, beginning with sitework. Structural topics include conventional footings and foundations (including the fundamentals of soil capacity). Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Health and Safety	The health, safety, and welfare of the dwelling occupants is of primary concern to anyone involved in the design, construction, or inspection of residential buildings. The International Residential Code® (IRC) sets minimum requirements for the most commonly encountered building practices. In this interactive, online course you will explore such topics as a safe means of exiting the building and protection from falls and from the hazards associated with breaking glass. The code also sets minimum room dimensions to support a healthy living environment. Other requirements in the code address fire safety and air supply and support concerns for chimneys and fireplaces. Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Protection, Utilities, Conservation, and Hazards	Protecting the public is an important part of your job. As part of its purpose statement to protect the health and general welfare of the public, the International Residential Code® (IRC) sets minimum requirements for durable interior and exterior finishes, as well as for providing weather protection. Permanently installed equipment and systems that control environmental conditions of a dwelling are significant in what you plan for and do. Part of this course will focus on common heating, ventilating, and air conditioning (HVAC) systems, gas-fired appliances and gas piping systems. The IRC also covers plumbing system design and installations typical of dwelling construction, as well as focusing on commonly encountered electrical installations for services, branch circuits, devices and fixtures in IRC-regulated buildings. Also addressed in this interactive, online course are the prescriptive methods of the IRC for effective use and conservation of energy through proper design and construction of dwellings and information on structural and environmental hazards often associated with dwelling and accessory building construction. Developed in partnership with the International Code Council®.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>2015 International Residential Code® Essentials - Structural</b>	When following conventional construction of residential buildings, protecting the safety and welfare of the building occupants and the public is a primary concern. But as a professional, you don't want to feel backed into a corner by standards. The 2015 International Residential Code® provides comprehensive, easy to use standards that afford the greatest design flexibility in recognizing other methods and materials of construction. This interactive, online course explains the difference between prescriptive and performance requirements. Prescriptive structural design requirements to resist the forces of wind, earthquake and snow are described and illustrated in an easy-to-understand way. Structural topics include conventional wood floor, wall and roof framing, and engineered wood products. Developed in partnership with the International Code Council®.	1	Fundamental
<b>2017 NEC Changes: Communications Systems</b>	Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables.	1	Intermediate
<b>2017 NEC Changes: Special Equipment</b>	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate
<b>2017 NEC Changes: A New Process and Five New Articles</b>	The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids.	1	Intermediate
<b>2017 NEC Changes: Appliances and Equipment</b>	Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners.	1	Intermediate
<b>2017 NEC Changes: Branch Circuit, Feeder and Services</b>	Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	2	Intermediate
<b>2017 NEC Changes: Conductors and Wiring Methods</b>	Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT, 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays).	1	Intermediate
<b>2017 NEC Changes: Enclosures and Boxes</b>	Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2017 NEC Changes: Hazardous Locations</b>	Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	1	Intermediate
<b>2017 NEC Changes: Receptacles and Switches</b>	How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles.	1	Intermediate
<b>2017 NEC Changes: Special Occupancies</b>	The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	1	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)</b>	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)</b>	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced
<b>2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy</b>	This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	1	Intermediate
<b>2020 NEC® Changes: Branch Circuit GFCI Protection</b>	Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210.	1	Intermediate
<b>2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures</b>	This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	1	Intermediate
<b>2020 NEC® Changes: Devices, Lighting, and Gear</b>	This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	1	Intermediate
<b>2020 NEC® Changes: Equipment for General Use</b>	This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries.	1	Intermediate
<b>2020 NEC® Changes: Focus on Wiring Methods</b>	This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings.	1	Intermediate
<b>2020 NEC® Changes: General Requirements</b>	The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space.	1	Intermediate
<b>2020 NEC® Changes: Overvoltage and Grounding &amp; Bonding</b>	This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications.	1	Intermediate
<b>2020 NEC® Changes: Process Review and Updated Articles</b>	This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems.	1	Intermediate
<b>2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems</b>	Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>2020 NEC® Changes: Special Equipment</b>	Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on under-floor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring.	1	Intermediate
<b>2020 NEC® Changes: Special Occupancies</b>	The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations.	1	Intermediate
<b>2020 NEC® Changes: Wiring and Protection</b>	Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection.	2	Intermediate
<b>3-way Communication</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>8-Hour HAZWOPER Refresher</b>	This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover: Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer. Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements.	8	Intermediate
<b>A Better Construction Contract</b>	This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP ) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed. A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>A Leaders Guide to Decision Making</b>	Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course.	0.5	Intermediate
<b>A Manager's Guide to Performance Appraisals</b>	This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements , Descriptions and Evaluation of Competencies , Self Assessment and more. There is a test included at the end of this course.	1	Intermediate
<b>Aboveground Storage Tank Requirements (AST)</b>	Any storage container of at least 55 gallons that is completely aboveground, partially buried (<10%), or located in a bunker or subterranean vault is considered an aboveground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to aboveground storage tanks.	0.5	Intermediate
<b>Access 2013: 01-Working with Databases in Access 2013</b>	Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013</b>	Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series.	2.25	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Access 2013: 03-Working with Forms in Access 2013</b>	Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 04-Working with Queries in Access 2013</b>	Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 05-Sharing and Protecting Your Data in Access 2013</b>	Dive into making reports with Access 2013. They are the final piece to working with an Access database. There also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series.	2	Intermediate
<b>Accessibility and Visitability</b>	Visitability is the concept of newly constructed houses being built to allow for someone with mobility disabilities to visit the house, move around inside the house, and use the restroom. The movement was founded by Eleanor Smith. The house will likely be around for a long time, and these concepts help not only people who visit, but also people who live there and may want to age in place. This interactive online course will introduce you to the principles of Visitability as well as the benefits of designing to these principles.	1	Fundamental
<b>Accessibility by Building Type: Multi-Use Facilities</b>	This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>Active Shooter and Other Acts of Targeted Violence</b>	Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders.	1	Fundamental
<b>Active Shooter Response</b>	An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers.	0.25	Intermediate
<b>ADA Compliance in Business</b>	The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities.	1.25	Intermediate
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: Ground and floor surfaces (302) Changes in level (303) Wheelchair turning space (304) Clear floor space (305) Knee and toe clearances (306) Protruding objects (307) Reach ranges (308) Operable parts (309)	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501) Parking Spaces (502) Passenger Loading Zones (503) Stairways (504) Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>ADA Guidelines 2010: Recreational Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including: 1001 General 1002 Amusement rides 1003 Boating facilities 1004 Fishing piers and platforms 1005 Miniature golf courses 1006 Golf courses 1007 Exercise equipment 1008 Bowling lanes 1009 Shooting facilities 1010 Swimming pools, wading pools, and spas ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>ADA Guidelines 2010: Small Towns</b>	People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Achievable Barrier Removal and Accessibility (B)</b>	The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines: Designing Pedestrian Facilities using Public Right of Way Accessibility Guidelines (PROWAG)</b>	The United States Access Board is the entity responsible for maintaining the American with Disabilities Act (ADA) guidelines. While the ADA guidelines address certain features common to public sidewalks, such as curb ramps, further guidance is necessary to address conditions and constraints unique to public rights-of-way. The Access Board has been developing Public Right of Way Accessibility Guidelines (PROWAG) for the past few years. Once PROWAGs are adopted by the Department of Justice, they will become enforceable under Title II of the ADA. This course will provide a summary of the most recent PROWAGs that have been published by the Access Board and how they relate to the design of pedestrian facilities within public right of ways.	1	Fundamental
<b>Adobe Acrobat DC Essentials</b>	Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this Uniquely Engaging TM course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions.	3	Fundamental
<b>Adult Learning</b>	People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process.	0.25	Intermediate
<b>Advanced Management Skills</b>	In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand.	5	Intermediate
<b>Advanced Project Management: Advanced Project Risk Management</b>	Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control.	2	Advanced
<b>Advanced Project Management: Advanced Project Scheduling</b>	Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model.	1	Advanced
<b>Advanced Project Management: Converting Strategy Into Action</b>	All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives.	1	Advanced
<b>Advanced Project Management: Executing Complex Programs</b>	In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs.	1	Advanced
<b>Advanced Project Management: Integrated Project Delivery</b>	Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charrette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems	2	Advanced
<b>Advanced Project Management: Managing Project Teams</b>	Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team.	1	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Advanced Project Management: Project Management in a Dynamic Environment</b>	This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects.	1	Advanced
<b>Advanced Project Management: Project Performance Management</b>	To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects.	1	Advanced
<b>Advanced Project Management: Sustainability in Project Management</b>	Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas.	2	Advanced
<b>Advanced Project Management: The Power of Project Leadership</b>	This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders.	1	Advanced
<b>AEC Success: 7 Steps for Using LinkedIn® Effectively</b>	LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups.	0.5	Fundamental
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Conflict Resolution in the Workplace</b>	Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations.	1	Fundamental
<b>AEC Success: Designing Presentation Visual Aids</b>	Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids.	0.5	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: Five Steps to Effective E-mail Management</b>	Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails.	0.5	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental
<b>AEC Success: How to Create a Focused, Productive and Low Stress Career and Life</b>	Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus.	0.5	Fundamental
<b>AEC Success: How to Find and/or Become a Mentor</b>	A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship.	0.5	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>AEC Success: Improving Organization and Productivity</b>	In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management.	0.5	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Obtaining the Right Credentials in Your Career</b>	Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever.	0.5	Fundamental
<b>AEC Success: Strategies for a Successful Interview</b>	We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you stand out amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine!	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>Air-Purifying Respirators</b>	Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators.	0.5	Intermediate
<b>Air-Supplying Respirators</b>	Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators.	0.5	Intermediate
<b>Alert Driving</b>	Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques.	0.25	Intermediate
<b>American Chemistry Council's Responsible Care Program</b>	In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program.	1	Intermediate
<b>An Effective Leader's Guide to Time Management</b>	Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes.	0.5	Intermediate
<b>An Entrepreneur's Guide to Networking</b>	Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'.	0.5	Intermediate
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Anatomy of Construction Defects</b>	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate
<b>Anhydrous Ammonia Awareness</b>	Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures.	0.25	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Anti-Harassment Training for All Employees - California</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	1	Intermediate
<b>Anti-Harassment Training for All Employees - Maine</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine.	1	Intermediate
<b>Anti-Harassment Training for All Employees - New York City and State</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City.	1.5	Intermediate
<b>Anti-Harassment Training for All Employees - Non-State Specific</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL	1	Intermediate
<b>Anti-Harassment Training for Supervisors and Managers - California</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Connecticut</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - New York City and State</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City.	1	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Non-State Specific</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state.	1	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
Appraising Performance	Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment.	3.5	Intermediate
Arc Flash Safety	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices.	0.53	Intermediate
Arc Flash Safety for Canada	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. The Canadian Standards Association (CSA) requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the CSA Z462 workplace standard for electrical safety, which is the recognized industry resource in Canada for best electrical work practices.	0.5	Intermediate
"Are You Ready?" Checklist	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Are You Ready? Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Asbestos Awareness	Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma.	0.5	Intermediate
Asbestos Awareness - 2 Hour Training	Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents.	2	Intermediate
ASHRAE 100: Energy Efficiency in Existing Buildings	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
ASHRAE Guideline 13-2014, Building Automation Systems	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Assessing Occupational Exposure</b>	Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate acceptable from unacceptable exposures, and discuss ways to control unacceptable exposures. This course will introduce comprehensive strategies to best manage risk and resources.	0.5	Intermediate
<b>AutoCAD 2014: Part 1 - Introduction</b>	AutoCAD® is the world's leading software for producing technical drawings or computer aided design and drafting. AutoCAD® has become the global industry standard for technical and engineering drawings. This course presents a hands on introduction to the AutoCAD® 2014 program and is the first in a series of courses on the 2014 release. You will be introduced to the AutoCAD® 2014 program and take a look at its basic features. You will also get an introduction to drawing basic shapes and lines. This course includes a practical application where you will get to complete real world examples using the AutoCAD® program.	2	Fundamental
<b>AutoCAD 2014: Part 2 - Editing Techniques</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands-on introduction to the AutoCAD® 2014 program and is the second in a series of courses on the 2014 release. In this course, you will be exploring the AutoCAD® 2014 program in more detail and looking at layers, object properties, modifying objects, and adding text annotation to drawings. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 3 - Editing &amp; Construction</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® 2014 program and is the third in a series of courses on the 2014 release. In this course, we shall cover construction lines, auto mode, hatching, dimensioning, and setting up dimension styles. We will have a practical application where we apply all of the above to a real-life situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® 2014 software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 4 - Drawing Aids and Utilities</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands on introduction to the AutoCAD® 2014 program and is the fourth in a series of courses on the 2014 release. In this course, we will look at how to create and work with groups, blocks, annotation, and utilities. We'll look at how to set up and use the coordinate systems. And then, we shall have a practical application where we apply the above to a real life problem. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 5 - Template, Layouts, and Viewports</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the fifth in a series of courses on the 2014 release. In Part 5 of our lecture series on AutoCAD® 2014 we shall cover layouts, layout templates, viewports, plotting, exporting, and at the end we shall have a practicum. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 6 - Advanced Editing &amp; Annotation</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the sixth in a series of courses on the 2014 release. In Part 6 of our series on AutoCAD® 2014, we shall cover arrays, annotation scaling, external references, and then we'll have a practical problem where we'll apply these to a real-life engineering situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>Back Injury Prevention</b>	If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries.	0.38	Intermediate
<b>Backhoe &amp; Front End Loader Safety</b>	Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipments capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate.	0.25	Fundamental
<b>Backing Up Safely</b>	How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards.	0.25	Intermediate
<b>Baler Safety</b>	Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include: Basic safety rules for baler use Pre-use inspection Standard operating procedures Safely removing the baled cardboard	0.15	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Banding Safety</b>	For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads.	0.5	Intermediate
<b>Basic Business Finance</b>	Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business.	1	Fundamental
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations. We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Basics of Leadership: 01-Leadership Challenges</b>	Leaders in the 21st century must accommodate themselves to today's rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 02-Changes in Corporate Culture</b>	A company's organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 03-Keeping Employees Energized</b>	Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3.	1	Intermediate
<b>Basics of Leadership: 04-Knowledge Management</b>	Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in today's workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 05-Elements of Change in Business</b>	Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why it's essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 06-Leadership Dynamics</b>	Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series.	1	Intermediate
<b>Basics of Soil Resources 1: Classification, Mapping and Data Bases</b>	The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations; 99.7 percent of human food comes from cropland, which is shrinking by more than 10 million hectares (almost 37,000 square miles) a year due to soil erosion. This 2-hour online course discusses soil as a complex, dynamic, biogeochemical system that is the principal substrate, vital to every life cycle of terrestrial vegetation and organisms. Soil serves as a reservoir of water and nutrients as well as a medium for the filtration and breakdown of wastes. Faced with climatic changes, increasing population and rapid decreases in the extent and quality of the soil resource base, the global community must now take stewardship of the resource most immediately linked to our survival.	2	Fundamental
<b>Basics of Soil Resources 2: Erosion, Desertification, Salinization &amp; Soil Acidification</b>	This course focuses on the topics of erosion, desertification, salinization and soil acidification. These are issues that affect all life on earth. 70% of earth's land capable of supporting agriculture has suffered erosion and soil degradation. This has a direct impact on the chemical cycles of life, the atmosphere, water and food supplies of the entire planet. The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations. Soil and land resources are generated, developed and renewed within a geologic time frame, in processes that take hundreds of thousands or even millions of years. The span of human history is measured in some thousands of years. For this reason, land resources must be regarded as essentially non-renewable. It is therefore exceptionally important to adopt a proactive approach to conservation and sustainable management of these critical resources.	2	Fundamental
<b>Basics of Water Resources: Groundwater Contamination</b>	Since the 1970s there has been a disturbing discovery of hazardous wastes in ground water. Early discoveries of sites such as Love Canal in New York and the Denver Arsenal in Colorado initiated a new era in groundwater studies. Throughout the 1980s numerous studies of abandoned waste sites, spills and leaking underground storage tanks became headline news. Groundwater hydrology is now critical to understand the mechanisms and rates of transport of physical, chemical and biological contamination below the ground, and the impact of those contaminants on the ground water supply. This 2-hour interactive online course covers the fundamental sources and classifications of groundwater contamination. The course focuses on the discussion of natural and man-made sources of groundwater pollution and gives some perspective into various systems of categorization and classification. The RedVector course entitled Basics of Water Resources: Groundwater Hydrology covers the introduction to the hydrologic cycle and the basic terminology of groundwater. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Basics of Water Resources: Groundwater Hydrology</b>	This 1-hour interactive online course covers the fundamentals of water supply hydrology. From the hydrologic cycle to the nature and character of groundwater as it goes from recharge zones to discharge points, the basic concepts and terminology are introduced in a clear and easy to read form. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Basics of Water Resources: Wetland Basics</b>	Once perceived as worthless, wetlands are now known to be vital to water quality, erosion control, species diversity, biological productivity and even climate. Their form and function involves a complex interaction between geological setting, hydrology and climate. Their reaction to and interaction with human activity in a region will determine the future of humans in that region, since they ultimately play a role in water quality, flood control, pollution and climate control as well as providing food and recreational resources. This 3-hour interactive online course covers the fundamentals of wetlands. Keywords: wetland, hydrology, climate, flood control, water quality, pollution, climate control, ecology, species diversity, biological productivity, environment, environmental, hydrologic cycle, chemical cycles, swamp, bog, fen, Clean Water Act, Section 404 Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Battery Acid and Spill Safety</b>	Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases.	0.75	Intermediate
<b>Battery Applications</b>	This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material.	3	Intermediate
<b>Be Proactive! Inclusion Starts With You</b>	An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace.	0.2	Intermediate
<b>Bed Bugs: Facts And Prevention</b>	Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Behavior-Based Safety</b>	Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program.	0.5	Intermediate
<b>Benzene: Safe Handling &amp; Storage</b>	This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training.	1	Intermediate
<b>Better Business Writing</b>	Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world.	0.75	Intermediate
<b>Biofilters: A Natural Approach to Storm Water Pollutant Removal</b>	Bioswales and constructed wetlands are under increasing use to address pollutants in storm water runoff. However, many installations of these BMPs have failed or have not been as successful as hoped. This interactive online course provides a discussion of the concepts of biofilters. Most of the failures can be attributed to insufficient information being available or to bad or no expert input into the design, construction, vegetating, or maintenance of the bioswale or constructed wetland. This course is intended to provide information on the design and use of biofilters so that designers will be able to make better decisions on the design, construction, implementation, and maintenance of these Best Management Practices.	2	Intermediate
<b>Bioremediation Tactics</b>	Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose.	0.5	Intermediate
<b>Blind Spots: Diversity and Inclusion</b>	Is your biology working against you? This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns.	0.5	Fundamental
<b>Blocking and Cribbing for Heavy Equipment</b>	Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations.	0.35	Intermediate
<b>Bloodborne Pathogens</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.43	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Bloodborne Pathogens for Canada</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.5	Intermediate
<b>Bloodborne Pathogens for Custodians</b>	Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: <ul style="list-style-type: none"> <li>What bloodborne pathogens are</li> <li>Diseases that could be transmitted</li> <li>Potential exposure routes</li> <li>How to protect yourself from exposure</li> </ul>	0.25	Fundamental
<b>Bloodborne Pathogens for Hospitality</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bloodborne Pathogens for Schools</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bobtailing and Jackknifing</b>	Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached.	0.25	Fundamental
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Boom and Scissor Lift Safety for Canada</b>	Aerial work platforms provide a temporary workspace as an alternative to ladders or scaffolding. They can be used to perform inspection, maintenance, or repairs. This course describes basic types of aerial work platforms and how to work with them safely. It provides an overview of safety requirements, controls, preparation, work rules, hazards, and other safety precautions related to elevated platforms. This course discusses vertical towers, articulating boom platforms, and extensible boom platforms.	0.25	Intermediate
<b>Box Cutter Safety</b>	Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe. Topics covered also include: Safe body positioning Proper storage of the box cutter Blade disposal Safe blade changing techniques	0.1	Fundamental
<b>Brain Bites - Email Management</b>	From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You. More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce.	0.5	Fundamental
<b>Brain Bites - Empathy: The Key to Active Listening</b>	Show that you are actively listening by using empathy. You have probably heard empathy described as feeling someone's pain , but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Let Them Know You're Listening</b>	Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Organizing Your Files</b>	How To Stop Wasting Up To Two Hours Per Day Looking For Information. On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Brain Bites - Sharing a Workspace</b>	Learn to safely share a workspace to keep you and your coworkers healthy. The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Staying Safe Online</b>	Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Time Management</b>	Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Using Windows 10</b>	Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.75	Fundamental
<b>Brain Bites - Writing Effective Emails</b>	Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites: Microsoft Teams Meetings</b>	Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Broward County Ordinances Chapter 9</b>	Chapter 9 of the Broward County Ordinances essentially paraphrases some of the provisions in State of Florida statutes on construction industry laws and rules, mainly from: Chapter 489 Construction Contracting, Chapter 527 Sales of Liquefied Petroleum Gas, and Chapter 553 Building Construction Standards. Chapter 9 of the Broward County Ordinances is entitled simply Contractors. Here we find ordinances which apply to specific types of contractors working in Broward County, Florida. This chapter spells out the purpose, scope, and certification requirements as well as the potential disciplinary actions which may apply to contractors who choose to operate in violation of these ordinances. In this course we review the professions covered and the purpose of the ordinances, the requirements for obtaining certification as well as maintaining and renewing a certificate, the complaint and disciplinary system, and terms vital to Chapter 9 of the Broward County Ordinances.	1	Fundamental
<b>Browser Security Basics</b>	A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices.	0.25	Fundamental
<b>Building Design and Construction Features for Fire Protection</b>	Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost \$12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems.	1	Fundamental
<b>Building for Senior Living: Building Codes, Sustainability, and Structural Systems</b>	Because the health of the aging can be precarious and their safety is paramount, senior housing and care facilities are very carefully regulated. Federal and state governments subject some new projects to codes that govern program areas and the construction of all the major building systems. In addition, most states have detailed regulations written specifically to govern certain senior housing and care building types, including nursing homes, adult day care, outpatient diagnostic and treatment facilities, and some forms of assisted living. These regulations cover everything from space and environmental standards to resident rights and staffing requirements. This course covers building codes, structural systems, and sustainable building design for senior housing and care facilities. Federal, state, and local codes and regulations will be discussed, including safety and accessibility requirements. Selection of appropriate structural system or combination of systems, and the incorporation sustainable design principles into the senior housing and care facilities will also be covered in this course. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Building for Senior Living: Interior Design Elements and Considerations</b>	This course is divided into four major sections - Acoustics, Lighting Design, Interior Design, and Renovation, Restoration, and Reuse. Acoustics, of course, deals with sound. We will cover the many acoustical considerations to keep in mind when designing for everything from the public areas to the very private ones. In the Lighting Design section we'll cover the basics of light levels, lamping options, and daylighting. We'll also review guidelines for specialized spaces, as well as resident rooms in long-term care and assisted living facilities. The Interior Design chapter will discuss the design process, various trends, and guidelines for color, materials, and wayfinding concepts. For Renovation, Restoration, and Reuse, we'll explore options for rehabilitation, deconstruction, and new construction for the various types of facilities. We'll provide comprehensive guidelines, many images of examples, and tables of additional information. You'll get opportunities to apply what we're covering, and printable resources to reference in the future. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 1</b>	This is the first of two courses on programming and planning guidelines for senior living facilities. The senior living industry has expanded and diversified to address demographic change. This course provides an overview of the major issues involved in the planning, design, and development of specialized environments for this new group of aging Americans. Specifically, these two courses describe the issues associated with each of the 10 major building types within the general framework of design for aging. In Part 1, you will be introduced to all 10 building types, and we will take a detailed look at the first four, including Community Based Options, Geriatric Outpatient Clinics, Adult Day Care, and Long-Term Care. The remaining six building types will be looked at in Part 2. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 2</b>	Welcome to the second part of Building for Senior Living: Programming and Planning Guidelines for Facilities. In this course we will continue our discussion on the remaining six building types for these facilities. We will take a detailed look at the guidelines for Hospice, Assisted-Living Residence, Dementia/ Alzheimer's Care, Independent/ Residential Living Apartments, Continuing-Care Retirement Community, and Active Adult Community facilities. These guidelines are only a starting point for the project planning or programming effort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: The Future of Senior Living</b>	Since the 1980s, the senior living industry's response to a variety of trends and challenges has yielded new models for housing and care. This course summarizes some of the catalysts for that change, as well as those that will accelerate the rate at which the industry continues to evolve. At the end of this course, there is an extended discussion regarding the biggest challenge for the senior living industry: affordability. This course will discuss the following six issues that have been particularly challenging in recent years: <ol style="list-style-type: none"> <li>1. Demographics</li> <li>2. Consumer expectations</li> <li>3. Lifestyle changes</li> <li>4. Service partnerships</li> <li>5. New housing and care concepts</li> <li>6. Affordable options</li> </ol> Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Leadership Capability</b>	As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization.	0.5	Intermediate
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts.... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will effect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counter act these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Business Communication Fundamentals</b>	In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate.	0.75	Intermediate
<b>Business Dining Etiquette</b>	Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal.	0.5	Intermediate
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Business Ethics</b>	Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company.	0.5	Intermediate
<b>Business Ethics: Quick Refresh</b>	Designed as a review to supplement a comprehensive business ethics course, You'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified.	0.5	Intermediate
<b>Business Execution: 01-Execution Strategies</b>	Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go.	1.5	Intermediate
<b>Business Execution: 02-Inspiring Workplace Excellence</b>	When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees.	1	Intermediate
<b>Business Execution: 03-Turning Ideas into Actions</b>	There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure.	1.5	Intermediate
<b>Chainsaw Accidents - The Consequences</b>	Chainsaw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chainsaw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chainsaw accidents, this video hammers home the seriousness of what can happen when using a chainsaw, and the importance of following proper safety procedures at all times during chainsaw use. By demonstrating the many ways a chainsaw accident can occur your employees will walk away trained in how to prevent them.	0.15	Fundamental
<b>Chainsaw Safety</b>	Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program.	0.25	Fundamental
<b>Change Management</b>	Change is a constant in today's world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes.	0.5	Intermediate
<b>Chemical Unloading Basics</b>	All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed.	0.25	Intermediate
<b>Chemicals Used in Mold Remediation</b>	Chemicals are an effective tool for each remediation contractor. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. We will visit the terminology and the recent trends to equip you to make better decisions for your team and project.	1	Fundamental
<b>Chlorine Dioxide Awareness</b>	This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures.	0.25	Intermediate
<b>Choosing the Best Structural Lateral Force Resisting System</b>	The decision of the lateral force resisting system for a building should be made by the structural engineer and the architect. The decision is based on a multitude of factors including structural performance, integration with architectural systems, integration with mechanical systems, constructability, and cost. This course will investigate several common lateral force resisting systems; steel moment frames, steel braced frames, wood shear walls, concrete shear walls and compare the suitability of those systems for use in low-rise buildings. Metrics will be developed to assist in the decision making process. Use of those metrics will be explored through examples.	1	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Clean And Safe: Restrooms</b>	Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, it's about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel.	0.1	Fundamental
<b>Clean Water Act Section 404 Permits</b>	The Clean Water Act (CWA) protects waters of the United States (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit.	0.75	Intermediate
<b>Clear Communication</b>	Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Coaching Job Skills: 01-Determining Training Or Coaching</b>	Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees.	1	Intermediate
<b>Coaching Job Skills: 02-Your Path to Training New Skills</b>	Learn and apply the five-step process for training your team members on new skills.	1	Intermediate
<b>Coaching Job Skills: 03-Your Path to Coaching Existing Skills</b>	Learn and apply the five-step process for coaching your team members on existing skills.	1	Intermediate
<b>Coaching Job Skills: 04-Mastering Training New Skills</b>	Practice Training New Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 05-Mastering Coaching Existing Skills</b>	Practice Coaching Existing Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 06-Health Check</b>	Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment.	1	Intermediate
<b>Coaching with Confidence</b>	LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams.	6.5	Intermediate
<b>Coastal Engineering: Hurricanes and Nor'easters</b>	What is the difference between a hurricane and a nor'easter? What kind of damage can they cause to your building project? Hurricanes and nor'easters can be destructive natural events creating high winds, storm surge, large waves, and causing large amounts of erosion, jeopardizing structures built along the nation's coastlines. This interactive online course will provide information about how to build to better resist the effects of these storms, what foundation types perform better, and why these storms are so damaging to the built environment. A few case studies will be included to illustrate techniques that are known to improve building performance.	2	Intermediate
<b>Coastal Engineering: Sea Level Rise</b>	What are some causes of sea-level rise? Is it impacting all coastlines? Sea-level rise is a very real flood condition that has caught the attention of many coastal communities around the U.S. This interactive online course will provide information about the potential magnitude of this rising water, the planning required to better resist the effects of this rising water, and why sea level rise can be so damaging to the built environment. A few case studies will be included to illustrate what is being done around the country to combat this serious climate change issue.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Cold Stress</b>	People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress.	0.38	Intermediate
<b>Collaborative Communication: 01-Communicating to Your Manager</b>	Learn the background key concepts to effective communication to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 02-Your Manager's Communication Style</b>	Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Collaborative Communication: 03-Your Path to Communicating Up</b>	Learn and apply the five-step process for communicating to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 04-Mastering Communicating Up</b>	Practice Communicating Up in a full scenario situation.	1	Intermediate
<b>Collaborative Communication: 05-Communicating Up Health Check</b>	Test your ability to apply Communicating Up concepts in this skills-based scenario assessment.	1	Intermediate
<b>Combustible Dusts</b>	It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and prevention measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions.	0.25	Intermediate
<b>Commercial &amp; Residential Mixed Use Development and Sustainability</b>	This interactive webcast focuses on the sustainable nature of mixed-use development. Flexible building use gathers multiple functions into a single structure to redefine sustainable growth in the 21st century. Originally, energy was the main focus in creating buildings that were in harmony with the environment. Although focus on energy and resource conservation remains, the focus has expanded to include the concept of flexibility and density. This course also focuses on the various environmental, economic, and social benefits of providing combined commercial and residential space including; water use reduction, energy conservation, infrastructure cost, infill development, and land preservation. In addition, this course also looks at new sustainability initiatives that look outside the building envelope for sustainable opportunities (e.g., LEED Neighborhood Development, Sustainable Sites Initiative).	2	Fundamental
<b>Commercial Explosives Safety</b>	An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal.	0.43	Intermediate
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Kitchen Fire Prevention</b>	Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: <ul style="list-style-type: none"> <li>Different types of fire suppression systems</li> <li>How to operate and inspect these systems</li> <li>The importance of keeping flues and appliances grease-free</li> <li>Common sense tips to help employees remain safe</li> </ul>	0.1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Communication Skills for Supervisors</b>	Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates.	0.5	Intermediate
<b>Company Layoffs and Downsizing</b>	Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved.	0.75	Intermediate
<b>Complete Streets - An Introduction to the Complete Streets Concept</b>	This course presents an introduction to the fundamental principles of Complete Streets. The planning and development of Complete Streets projects is presented. You will also learn about the elements of planning for Complete Streets and designing and implementing Complete Streets programs.	2	Fundamental
<b>Complete Streets - An Introduction to the Design of Complete Streets</b>	Complete streets are roads and streets designed and operated to provide safe access for all users, including motorists, bicyclists, pedestrians, and transit riders. Complete streets enable users of all ages, and all physical abilities to safely move along and cross an urban street. This course presents in detail elements of design for complete streets such as intersection design guidelines, modern roundabouts, pedestrian treatments, and bicycle lane guidelines. Each element will be described in terms of the general principles, design considerations, and recommended practice. A variety of case studies will be presented.	2	Intermediate
<b>Completing the Mold Remediation</b>	You work hard each day on the project, but it's how you finish the job that people remember. Remediation projects involve controlling the work place, consistency, follow through, and finishing. This course will show you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success.	1	Fundamental
<b>Compressed Gas Cylinder Safety</b>	Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed.	0.38	Intermediate
<b>Concrete 1: Evaluation and Causes of Damage</b>	When taking on a concrete repair project, the first step is an important one - conducting a thorough evaluation. This 1-hour interactive online course begins with techniques for surveying the condition of the concrete, and reviews design and construction documentation, operation and maintenance records, instrumentation data, visual examination, methods of nondestructive testing and laboratory specimen analysis. The second part of the course identifies basic causes of deterioration, and covers typical symptoms, and recommendations for preventing further damage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 2: Repair Planning and Preparation</b>	The success or failure of a concrete repair project is dependent on many things, including how well you plan and prepare for the project. This 1-hour interactive online course discusses factors that should be considered before selecting a concrete repair method, as well as steps that should be taken to prepare the site before the actual repair begins. The first section of the course discusses the properties of repair materials and the concrete substrate, along with a review of important factors at the repair site itself. The second section discusses removal of concrete, and preparation of concrete surfaces for further work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 3: Methods, Materials, and Maintenance</b>	When a concrete structure fails, it requires repair. However, if not done correctly, the repair can also fail. This 2-hour interactive online course explains various methods and materials for the repair and maintenance of concrete structures. The first portion of this course describes materials and methods that are available for repair or rehabilitation of concrete structures, including their applications, limitations, and procedure. The second section of the course describes materials and procedures appropriate for cleaning and protecting concrete surfaces. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Concrete Additives: Water-Repellency &amp; Efflorescence Control in Masonry</b>	About 90% of the surface area of a masonry wall consists of concrete masonry units, with mortar joints making up the remaining. Both concrete and mortar are porous materials and, hence, can permit the passage of water through them. Therefore, a water-repellent masonry system should prevent the entry of water through both the concrete masonry units and the mortar joints. This 2-hour interactive online course provides the details of achieving water-repellency and efflorescence control in masonry construction. While the focus is on single-wythe masonry walls, the admixture technologies presented are applicable to other manufactured concrete products such as pavers and roof tiles.	2	Fundamental
<b>Concrete Fundamentals: An Introduction</b>	Are your customers or clients using words like slump, water-cement ratio, cement content, and compressive strength? Do you understand admixtures and their functions? How about reading and understanding a mix design? Do you know how to place and finish concrete? This 2-hour online course introduces the student to the basic fundamentals of concrete. This course includes a multiple-choice quiz at the end.	2	Fundamental
<b>Concrete Pavement Rehabilitation - Partial Depth Repair</b>	This 1-hour interactive online course recommends procedures for selecting, designing, and construction of partial depth repair of Portland cement concrete pavements. Partial depth repair is a concrete pavement restoration technique that corrects localized distress such as spalls, scaling, and popouts in concrete pavements. Partial-depth repair improves the rideability of jointed concrete pavement. Partial-depth repair can be used as a stand-alone rehabilitation technique. However, the Federal Highway Administration recommends its use as part of a comprehensive Concrete Pavement Rehabilitation (CPR) program. Information regarding cost and performance is also included in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Concrete Pavement: Glass Fiber Reinforced Polymers</b>	While we're driving on them everyday, the roadways are experiencing stress. When force is applied to concrete pavement it places a certain level of stress on the concrete. It cracks, wears away, and requires costly repairs. Steel-reinforced concrete pavement (CRCP) has been used since 1921 - it's time for a better way. This 1-hour interactive online course gives you the information and the methods to improve the strength of concrete pavements using Glass Fiber Reinforced Polymer rebar. You will see why concrete fails and learn a new way to prevent it. You'll be introduced to fiber reinforced polymers. With these formulas and designs you will build longer lasting, more durable roads.	1	Fundamental
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Concrete: Self-Consolidating (SCC)</b>	Self-Consolidating Concrete (SCC), also called self-compacting concrete, is a revolution in the field of concrete technology. SCC is a very fluid, high strength concrete that flows like water, compacts with little or no vibration, does not segregate, and is self-leveling. Products made with SCC have an excellent finish, and are virtually free of bug holes or honeycombing. Introduced to the concrete industry by the Japanese in the late 1980s, it is just now coming into its own in North America. This 1-hour interactive online course introduces the student to this new concrete product. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Confined Space Entry - Permit Required</b>	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space.	0.67	Intermediate
<b>Confined Space Entry Awareness</b>	A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry.	0.5	Intermediate
<b>Confined Spaces for Canada</b>	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. This course will describe the dangers, best practices, and permit requirements necessary when working in a confined space.	0.5	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
<b>Conflict Management</b>	When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified.	0.25	Intermediate
<b>Conflict Resolution</b>	Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace.	0.7	Intermediate
<b>Conflicting and Non-Existent Accessibility Standards</b>	What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility.	1	Fundamental
<b>Construction Administration: MEP Commercial Buildings</b>	This 1-hour interactive online course provides the commercial building professional with guidelines for administering construction activities in the MEP (mechanical, electrical, plumbing) discipline area. Many aspects of construction administration are reviewed to provide information on the roles and responsibilities involved with this position. This course reviews the steps of MEP design for a commercial building that construction administrators are involved in as well as explaining their role in performing MEP building surveys. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course contains a lot of the same information as in the course titled 'Performing MEP Commercial Building Surveys', and it is not recommended that these courses be taken together. This course varies because it focuses on the role of the Construction Administrator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Construction Arbitration: A Brief Overview - Beginner</b>	This 1-hour interactive online course provides a brief overview of the arbitration process for the construction professional. Arbitration is often used to resolve disputes arising from the construction process, both during and after contract performance. If you are a prime contractor, subcontractor, architect, engineer, construction manager, owner's representative, surety, insurance company, or otherwise involved in the construction industry, it is highly likely that you will be a party to one or more arbitration proceedings during your career. This course will provide basic information to the construction professional allowing him or her to understand the arbitration process. There will be a multiple-choice quiz included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Construction Claims: Changed Work</b>	This 2-hour online interactive course provides a basic understanding of types of changes in work—directed or constructive change—and changed conditions. It provides an in-depth examination of cumulative impact, emphasizing how to identify types of change-related impacts, that includes a detailed discussion of the Leonard Study. In addition, it discusses how to address cumulative impact and assess allowance for recovery. Summaries of actual court cases are incorporated into the course to illustrate how changed work claims are determined. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Construction Cost Estimating: Resources and Processes</b>	Being able to accurately estimate (within acceptable ranges) the cost of construction of any project, at any given stage in the process (whether just at concept, during design development, or fully developed and ready-to-advertise design) is an invaluable skill for anyone in the construction industry. How can an estimator become better and more accurate? In order to prepare an estimate, there are several items to consider, including the estimating team, how the quantity takeoff is going to be done, what data resources are available for pricing, how the estimate's going to be prepared and organized and how it's going to be adjusted based on multiple bid factors and the construction economy. In this course, you'll learn how to utilize some of the most important resources and tools available to you, as an estimator.	1	Intermediate
<b>Construction Cost Estimating: Types and Purposes of Estimates</b>	Did you know opinion of probable cost does not mean the same thing as an estimation of cost? While this may be a term used by design consultants in the preliminary stages of a project's estimate, this should not be mistaken for an estimation of cost. This is simply a professional opinion based on experience and available knowledge. The responsibility of a Contractor is to provide a detailed quantitative analysis of each material cost or step in the process for a given project. This interactive online course will educate you on the various types of estimates that can be provided as well as the methods to do so accurately.	1	Intermediate
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>Construction Project Management: Construction Practices and Systematic Project Management</b>	In this course, we're going to present and discuss the management of field construction projects. We'll also cover management techniques for controlling cost, time, resources, and project finance during the construction process. Emphasis is placed on practical and applied procedures that have been proven effective. Effective management of a project also requires a considerable background of general knowledge about the construction industry. This interactive online course will familiarize you with certain fundamentals of construction practice. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Managing Time</b>	Did you know the schedule plays a central role in construction project management? Developing an initial schedule is a powerful tool that you can use in managing various aspects of a project, including time, resources, production, and cost. This interactive online course concentrates on using the schedule to manage the time required to execute the construction processes. It begins by considering the project as a whole, determining how to shorten the overall project schedule, and looking at the cost trade-offs of expediting the project. It then focuses on current or upcoming parts of the project with the objective of managing the project components more effectively. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Production Planning</b>	Did you know production planning begins well before the project is mobilized in the field and continues throughout the project until all field operations are closed out? Production planning is concerned with how project activities are going to be carried out. It establishes the methods to be used, the assignment of personnel, the movement of material to the workface, and the process of assembling the pieces. This interactive online course considers all resources that contribute to the job, including personnel, materials, construction equipment, the site, the environment, and anything else that might affect the job. It will also cover the lean construction process and BIM, which is beginning to change the way construction is managed and organized. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Coordination</b>	Progress reporting provides the opportunity to analyze the current status of the project. Often, this will lead to re-scheduling and corrective action to bring the project back within specified time parameters. This cycle of planning and executing activities, measuring and reporting progress, revising the plan based on current status, and updating the schedule is continued repetitively throughout the project. In this interactive, online course, we'll focus on managing the ongoing project. We begin by looking at detailed schedules used by the field supervisor to plan crew work on specific activities in the near term. Then we move on to measurement and reporting of progress.	2	Intermediate
<b>Construction Project Management: Project Cost System</b>	Did you know that managing cost for a construction project is equally important as managing time? It allows you to make decisions that will enable you to maximize resources. This interactive online course covers the various elements of the project cost cycle, starting with the estimate and moving through the project to collection of actual unit costs to be incorporated into the company cost database for use in starting the cycle again for a future project. We will also review the relationship between time and money. Although the details of a specific cost-control system vary substantially from one construction firm to another, the ensuing treatment can be regarded as being reasonably typical of current practice within the construction industry.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Construction Project Management: Project Estimating</b>	If you were given the task of estimating the future expense of a unit of production in a manufacturing facility you could do it with considerable precision. A plant offers standard conditions, close controls, and consistent processes. Construction estimating, on the other hand, lacks standardization, presents challenging site locations and project conditions. Nevertheless, a skilled and experienced estimator, using cost accounting information gathered from similar previous construction projects, can do a reasonable job of predicting construction costs. The character or location of a project can present unique problems, but there are usually some basic principles and precedents that apply. This interactive online course will walk you through the steps involved in estimating construction projects starting with an overview of cost-estimating procedures and how the final project budget is reached. Then, you'll learn how to develop monthly progress estimates and change order estimates. Finally, you'll become familiar with details about specific estimates that you'll typically prepare. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Financial Management</b>	Did you know the project manager bears the overall responsibility for financial management of the work on a construction project? This includes carrying out such fiscal duties as may be imposed by the construction contract and implementing appropriate monetary procedures according to the dictates of good business practice. Project financial management can involve a broad range of responsibilities. This interactive online course covers project cost breakdowns, the forecasted schedule of progress payments, preparation or approval of periodic pay estimates, and documentation required for final payment. You will also learn how to monitor project cash requirements during the contract period and maintain complete and detailed daily records of the project.	1	Intermediate
<b>Construction Project Management: Project Planning</b>	Project planning is central to project management and takes place at all stages. The plan is typically very simple in concept, though it may be quite complex in execution. Additional participants in the process, such as designers, contractors, specialty contractors, and material suppliers also plan for a project. Their plans often include much greater detail but are limited in scope in order to execute their part of the project. Project planning is essential to any task, whether it be management oriented or focused on execution in the field. The product of the plan is often a schedule. In this course, you will see that the planning process, resulting in the project schedule, is what ties all of the elements of project management together. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Scheduling Applications</b>	In previous courses in this series, we focused more on tactical use of the schedule to manage specific components of the project, such as production, time, resources, and costs. In this interactive, online course, we'll consider strategic scheduling applications as they relate to the overall project, including legal aspects of the schedule. This course considers the role of the schedule and the variety of operational schedules available to the project manager. It also discusses the ways scheduling information can be organized and presented.	2	Intermediate
<b>Construction Project Management: Project Scheduling Concepts</b>	How would you account for weather delays in a construction project schedule? What about the availability of labor and equipment? How much time should you allow for each subcontractor to complete their work? In this interactive online course, we'll answer those questions. You'll learn how to determine the duration for individual activities and the calculation process for project times. Through examples, you'll discover new terminology for scheduling, including early and late start and finish, float, critical activities, and lag time. You'll then convert the project days-based schedule into calendar dates. We'll also discuss the pros and cons of the bar chart in construction project scheduling and how computer applications can save time and provide an array of project data in various forms. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Resource Management</b>	Much of the job of a project manager, as well as the job of a field supervisor, focuses on the efficient investment of resources to achieve the project objectives. A resource can be considered anything that adds value to the project. When we talk of resources in the context of construction, we typically think of manpower, equipment, and materials. In addition to what we normally understand manpower to mean—that is, craft workers who actually do the work on the project—there are many other people who add value to the project. It is the job of the project manager to manage all of these resources in support of efficient execution of the project. This interactive, online course will focus on methods and procedures involved with the management of the three primary resources of manpower, equipment, and materials.	1	Intermediate
<b>Construction Site Stormwater Runoff Control</b>	Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP).	0.5	Intermediate
<b>Conveyor Safety</b>	Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe.	0.5	Intermediate
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Co-worker Coaching</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Crane and Hoist Rigging Safety</b>	Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE).	0.53	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Crane and Hoist Rigging Safety for Canada	Setting up safe and secure rigging for a crane lift is of the utmost importance; possibly more important than the operation of the crane itself. This course gives an overview of the primary rigging issues that affect crane and hoist safety. Workers will learn about the materials used for rigging and slings, the various sling hitches used, and basic safety precautions. It is based on General Industry and Construction regulations, as well as recognized best rigging practices. It is also aligned with regulations that require riggers in the construction industry to be qualified.	0.5	Intermediate
Crane Hand Signals	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
Crane Hand Signals for Canada	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
Crane Lift Planning	When involved with a lift have you ever asked yourself, I wonder if the crane is big enough? or Is the rigging set up properly? or Is it safe to move loads over or under a power line? . If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan.	0.5	Intermediate
Create a Windows App Using Free Tools and No Coding	Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do not have the time to learn a programming language. Those obstacles should not stop us from publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very own Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.'	2.5	Intermediate
Creating a Code of Conduct	Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct.	0.5	Intermediate
Creating Word Templates	Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!	0.5	Fundamental
Crime Prevention Through Environmental Design: Surveys & Floor Plan Reviews	This course will introduce Crime Prevention Through Environmental Design (CPTED), as it pertains to professionals assisting their clients to design or obtain safer built environments. Students will understand the CPTED strategies so that they can incorporate them based on clients' needs or better understand the strategies when dealing with security planners or consultants. Displayed examples will include physical security surveys and architectural plan reviews so that after-market security countermeasures can be reduced or eliminated. CPTED can also assist professionals with bidding processes. This course will explore residential, commercial, and venue CPTED concerns through multiple examples of floor plan reviews and physical security survey checklists.	2	Fundamental
Critical Thinking and Problem Solving	Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights.	0.6	Intermediate
Crystalline Silica Awareness	Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it.	0.5	Intermediate
Cut and Puncture Wound Prevention	Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place.	0.5	Intermediate
Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture	With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning</b>	Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages. In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management.	0.5	Fundamental
<b>Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards</b>	When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data.	0.5	Fundamental
<b>Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks</b>	Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. In this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use</b>	Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: End-User Best Practices</b>	We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Security Awareness Essentials</b>	In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Social Engineering</b>	Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it.	0.5	Fundamental
<b>Cybersecurity Overview</b>	The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible.	0.25	Fundamental
<b>Dangers of Distracted Driving</b>	Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving.	0.25	Intermediate
<b>Data Centers: Connectivity Requirements and Architectural Layouts</b>	Once a site for a data center has been identified and acquired, the multi-year process of design, construction, testing & commissioning, and equipment installation begins. Data Centers are resource hogs - but above all, they require tremendous amounts of power and data communication to operate effectively and efficiently. Appropriate network (power & communication) designs are essential; robust and redundant facilities are mandatory to a 24x7x365 uptime environment. Housing this equipment through appropriate site (Civil) and superstructure (Structural) design and construction efforts is the first layer of defense against network or equipment failure. So, what does it take to make a data center run reliable? In this course, we will review the connectivity demands and requirements for fiber and power, as well as some of the best practices for architectural and structural layouts in modern data centers.	1	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Data Centers: MEP, Fire Protection, and Equipment Rooms</b>	<p>Connectivity. The internet of things. Uptime. Reliability. What are these things? These are all terms and concepts that relate to the always connected, always on world that has evolved out of the digital age. The cornerstone of these concepts is the modern data center - massive, hulking, and also secretive buildings that house the hardware, firmware, and software that power our everyday lives. Email, phone calls, Facebook, Google - these are all services provided by the computers housed in data centers. They are located all over the country and the world. They are in high rise buildings in dense urban areas, and they are located in remote rural campuses. They are small, occupying a few thousand square feet in old, Tier I locations, or they can be massive, hundreds of thousands of square feet with 50MW of electrical power. These technological marvels require significant infrastructure to maintain the always-on, always-available status that we demand of services in the modern world. That level of reliability is not achieved through chance. Significant effort and expense is required to facilitate conditions that are conducive to 24x7 reliability. Not the least of which are Mechanical, Electrical, Fire Protection, and Security Systems for these centers. In this course, we will dive into the complexities of these systems. By the end of this course, you will be familiar with the unique language and terms used to discuss the various elements of these systems - like PDU, UPS, EUI, and PUE (and, no, since this is not a one-man interpretation of Robin Williams' efforts in Good Morning, Vietnam! you can rest assured that I didn't make up any of those terms). You will also be able to understand the challenging design strategies that drive the installation and maintenance of these complex and integrated systems, and you will also have a much more in-depth understanding of the costs that drive data center design, construction, and maintenance efforts. Note: This course offers subtitles in Brazilian Portuguese and Spanish.</p>	2	Intermediate
<b>Data Centers: Operations &amp; Maintenance, Upgrades, and Expansions</b>	<p>If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations &amp; Maintenance, or O&amp;M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&amp;M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.</p>	1	Intermediate
<b>Data Centers: Planning, Siting, and Selecting</b>	<p>Data centers are the brain and nerve centers of today's high tech environment. Email, webpages, phone calls, banking records, online purchasing, and facilities controls are just a few of the myriad items that require efficient, accurate, and secure electronic transmission and storage. The crux of this entire system is the modern data center - millions of square feet of high power and cooling density systems that process quadrillions of signals. Data Centers can cost in excess of \$1B to design and construct - and most systems rely on multiple data center locations. Properly siting and planning the data center, or data center network, is the first step in a multi-step process.</p>	2	Intermediate
<b>Data Centers: Trends, Technologies, and Efficiencies</b>	<p>Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.</p>	1	Intermediate
<b>Decision Making</b>	<p>Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Intermediate
<b>Decks, Stairs, Rails for Home Inspectors</b>	<p>In this course we'll cover the design and construction of the decks, stairs, and rails from the home inspector's point of view. I'll review some of the basic definitions so that you'll know the proper terminology to use in writing your reports. You'll learn what to look for to ensure proper support. You'll see pictures of good construction compared to unsafe construction. We'll cover materials and fasteners and I'll give you specific examples of what you need to watch for and document. We'll review the requirements for heights, widths, and distances between components to assure a safety for users, and as we go through the course, I'll give you inspection tips from my own experience.</p>	2	Fundamental
<b>Deconstruction and Reuse: Sustainable Construction in Reverse</b>	<p>This interactive webcast focuses on the differences between conventional demolition and deconstruction. We will also focus on the environmental and economic rewards from taking a building apart - either wholly or partially - with the intent of salvaging (recycling or reusing) building materials. This approach varies greatly from conventional demolition which involves material removal and disposal. This course will focus on the types of building materials and their potential for reuse. Some materials have a long tradition of reuse (e.g., bricks, metal), whereas other materials are now finding a new vocation (e.g., plumbing fixtures, doors). We will also explore case study examples of both evolving deconstruction techniques and the types of materials salvaged.</p>	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
Design of Bicycle Facilities - Buffered Bike Lanes	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle transportation networks. One of the key elements being used to improve bicycle transportation networks is the construction of buffered bike lanes. In this interactive online course, key planning and design considerations for buffered bike lanes will be reviewed. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of buffered bike lanes and that support their implementation, such as traffic separator options, mid-block crossings and intersection accommodations.	2	Advanced
Design of Bicycle Facilities - Cycle Track Design	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing main bicycle thoroughfare facilities, such as cycle tracks, as key elements of their transportation network. Cycle tracks can be considered as bicycle arterials or bicycle highways; this interactive online course will outline the planning and design elements needed to develop cycle tracks that support this main thoroughfare purpose. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of cycle tracks and that support their implementation, such as ADA accommodations, vehicular traffic level considerations, and the design of geometric elements to accommodate on-street parking, transit facilities and left-turn movements from the cycle track.	2	Advanced
Design of Bicycle Facilities - Multi-Use Paths	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation and a 30% increase in pedestrians. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle and pedestrian transportation networks. One of the key elements being used is that of multi-use paths. Engineers, Architects, Contractors and other professionals from the A/E industry will gain core knowledge under this course for the planning and design of multi-use paths. This interactive online course will cover key guidelines from AASHTO, FHWA and NACTO in the development of multi-use paths, with a special emphasis in ADA elements, geometric requirements such as horizontal and vertical curvature design, and the adequate development of multi-use path crossings and roadway mid-block crossings.	2	Advanced
Design of Buildings for Coastal Flooding	This course provides information important to the design of foundations used in coastal areas. The design methodology comes from FEMA's Coastal Construction Manual (CCM) and has been developed from studying failures after numerous coastal storms. Flood loads are developed using both ASCE 7 and the CCM and applied to pile supported structures. Other flood effects such as erosion and scour are covered. Pile design is discussed as well as bracing methods used in pile systems. An example of how to calculate flood loads and how to apply them to the foundation at a coastal location is included to help provide context on the method and magnitude of the loads.	2	Advanced
Design of Buildings Using Insulated Concrete Forms (ICF)	This course is intended to present a comparison of engineering analysis approaches to the design of building structures for Insulated Concrete Forms. The course covers the Prescriptive Method (developed by HUD through PCA) and the two appropriate sections of the 2011 ACI code for walls. A simple, 2-story house with a basement is used as an example to demonstrate the application of both of these methods for a 6 inch thick waffle-slab and a flat panel ICF wall.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Analysis and Design of T Beams and Doubly Reinforced Beams	In this course you will learn ways to analyze T beams and utilize doubly reinforced beams. This course will demonstrate how to size and find required quantity of steel based on the consideration of strength and serviceability requirements. This course shows how to utilize doubly reinforced beams to account for bending moments. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Bond, Development Lengths, and Splices	In this course we will cover how to properly bond beams for a variety of purposes by calculating the development lengths for the reinforcement bars, which will help to provide extra strength to the beams. Factors affecting your developmental length calculation will also be covered, such as critical sections of a beam. We will also cover how splices can help or hinder your project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Rectangular Beams and One-Way Slabs	In this course you will receive comprehensive information on rectangular beams and one-way slabs. We will give you load factors, considerations necessary for beam design, limitations of lateral bracing and deep beams, and examples of beam design. We'll also cover bundled bars, one-way slabs, and reinforcement of cantilever and continuous beams. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Short Columns Subject to Axial Load and Bending	The purpose of this course is to cover some of the aspects of a column that will influence your selection, design, and/or analysis of a column(s) to be used in the support of a structure. This course will cover such topics as: Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Flexural Analysis of Beams	In this course you will learn the three progressive stages that occur before a beam collapses and how to calculate the stress of concrete beams at the different stages. In this course, we will cover formulas you can use to calculate a beam's stress, both in concrete and steel, and when those formulas should be used. We will be utilizing examples to enhance your understanding of each formula's use and what is occurring at each stage. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Design of Reinforced Concrete Using the ACI Code: Introduction</b>	This course will introduce you to concrete and reinforced concrete. You will get definitions, advantages and disadvantages, and descriptions of the different types of concrete. We'll examine all the aspects of concrete - its composition, compatibility with steel, weights and strengths, and load types. You will learn to analyze your concrete needs and to identify the solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction to Columns</b>	You need to be familiar with many types of columns in order to design the safest, most economical building that makes the best use of interior space. This course gives you the types of columns, information on column failure, and the limitations of the ACI Code. You also get a discussion of economical column design and formulas you can use to design for axially loaded columns.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Serviceability</b>	Serviceability addresses the issue of performance. In this course you we will examine deflections and cracks. We'll give you background material on the importance, control, and calculation of deflections. You'll be instructed in effective moments of inertia, long term deflections, simple-beam deflections, and continuous-beam deflections. We'll also review types of cracks, control of flexural cracks, ACI code, provisions concerning cracks, and miscellaneous cracks. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Shear and Diagonal Tension</b>	The objective of today's reinforced concrete designer is to produce ductile members that provide warning of impending failure. To achieve this goal, the code provides design shear values that have larger safety factors against shear failures than do those provided for bending failures. The failures of reinforced concrete beams in shear are quite different from their failures in bending. Shear failures occur suddenly with little or no advance warning. Therefore, beams are designed to fail in bending under loads that are appreciably smaller than those that would cause shear failures. This course discusses shear and diagonal tension on reinforced concrete and how different types of reinforcement can help mitigate the damage caused by cracking. Definitions related to concrete construction and reinforcement will be provided, as well as shear design example problems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Slender Columns</b>	When a column bends or deflects laterally an amount $\delta$ , its axial load will cause an increased column moment equal to $P\delta$ . This moment will be superimposed onto any moments already in the column. Should this $P\delta$ -moment be of such magnitude as to reduce the axial load capacity of the column significantly, the column will be referred to as a slender column. In this course we will examine the characteristics of slender columns and how the ACI code applies to these columns, paying close attention to the calculations and procedures used in determining K factors and computing moment magnifiers. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Strength Analysis of Beams</b>	This course takes a look at strength analysis of beams according to the ACI code. You will be introduced to two different design methods, working-stress design and strength design; with the focus of the course pertaining to strength design. We will take a look at the advantages of strength design and why it has moved to the preferred method. We will examine two methods used for calculating structural safety of a reinforced concrete structure. We will take a look at varying expressions associated with stress load and beam integrity. We will explain the different ACI codes and how they relate to beam strength. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Two-Way Slabs, Equivalent Frame Method</b>	In this course, we will illustrate how moment distribution can be applied to the analysis of structures consisting of non-prismatic members. We will also explain the difference between the direct design method and the equivalent frame method, and list the properties of slab beams and columns. An example problem using the equivalent frame method will be demonstrated, as well as explanation of the benefits of computer analysis. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Water Efficient Buildings</b>	This interactive webcast will discuss approaches for conserving water including water efficient building technologies, simple systems for recycling and reusing water on site, and how to drastically decrease the demands on shared supplies. This course will also discuss the many great environmental and economic benefits to water efficient buildings. We will conclude with details on LEED (Leadership in Energy and Environmental Design) criteria for water efficiency, plus additional case study examples on innovations in wastewater treatment and reuse	2	Fundamental
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Designing and Specifying Pervious Concrete</b>	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydro-logic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
<b>Designing Beautiful Documents</b>	Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents.	0.5	Fundamental
<b>Designing Buildings for Tornadoes</b>	This course will present the most up to date ideas about designing buildings for the devastating effects of tornadoes. The focus will be on how to improve building performance and reduce damage to buildings impacted by tornadoes. The presentation will cover tornado research topics, design methods using ASCE 7-10 with needed modifications to account for tornado wind structures, and some examples on how to apply these concepts to building design.	1	Intermediate
<b>Designing for Flood Loads Using ASCE</b>	This course will provide technical information important to flood design for all types of buildings and all types of flood conditions. We will cover the minimum design and construction standards required by regulations. You will learn the current design methodologies for foundation issues for both riverine and coastal buildings. This course will cover the limitations of prescriptive solutions for flood-design problems. Flood load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures and ASCE 24 Flood Resistant Design and Construction will be discussed. And you will learn how to retrofit existing buildings with flood-resistant features. As we learn more about this devastating hazard and communities strive to be more sustainable, flood provisions in state and federal regulations are changing, as well as design concepts and methodologies, making it essential for engineers to remain engaged with these changing methodologies.	2	Advanced
<b>Designing Foundation Repairs</b>	What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair.	2	Intermediate
<b>Designing Permanent Erosion and Sediment Control Systems</b>	Development of land, whether it is for a new highway or a new office building, requires the re-contouring of terrain. And as such, requires a redistribution of drainage patterns. This change in the land creates the potential for long term erosion through storm events that occur during the life of the project. To prevent long term erosion, permanent erosion and sediment control system need to be developed as an integral part of the projects' designs. The primary goals of this interactive online course are to familiarize Engineers, Architects and Contractors with the design and application of different Best Management Practices (or BMPs for short) in the design of Permanent Erosion and Sediment Control.	2	Intermediate
<b>Designing PEX Plumbing Systems to Optimize Performance and Efficiency</b>	What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance.	1	Fundamental
<b>Designing Temporary Erosion and Sediment Control Systems</b>	Earthwork activities during construction disrupt natural and man-made ground coverage, creating the potential for erosion hazards and the contamination of natural resources. This interactive online course teaches you about best management practices for temporary erosion and sediment control. You will also learn about common regulations and requirements set in place to minimize significant impact upon the health, safety and welfare of the community.	3	Intermediate
<b>Designing Using LRFD Principles</b>	What is LRFD? LRFD (Load and Resistance Factor Design) principles are used in structural engineering applications so structural reliability is more consistent across various materials and loading conditions. This concept becomes particularly important in performance-based design scenarios when the structural engineering solutions are required to address how the structure is used and expected to perform - and not prescriptive building codes. This interactive, online course will review load factors, resistance factors, and reliability theory. We will also discuss the four material types (wood, steel, concrete, and masonry), looking at how each of these material standards deal with LRFD design.	2	Intermediate
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced
<b>Developing an Employee Safety Training Program</b>	People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
Developing and Implementing an EPA RMP	Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68. To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program.	2	Fundamental
Developing Performance Goals & Standards: 01- The Value of Planning	Experience the importance of planning and developing goals for your team.	1	Intermediate
Developing Performance Goals & Standards: 02-Creating Performance Standards	Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed).	1	Intermediate
Developing Performance Goals & Standards: 03- Your Path to Developing Performance Goals and Standards	Learn and apply the five-step process for setting and discussing team member performance goals.	1	Intermediate
Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards	Practice Developing Performance Goals and Standards in a full scenario situation.	1	Intermediate
Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check	Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment.	1	Intermediate
Developing Your Leadership Style	Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done.	1	Intermediate
Digital Transformation: Benefits of a Digital Corporate Culture	When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits.	0.2	Intermediate
Digital Transformation: Challenges Organizations Face by Not Embracing Technology	Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges.	0.2	Intermediate
Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations	When integrating digital technology into a business infrastructure, it's important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations.	0.2	Intermediate
Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation	Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication Productivity Marketing Security	0.2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Digital Transformation: Four Steps to Implementing a Digital Transition</b>	Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course.	0.2	Intermediate
<b>Digital Transformation: Things to Consider Before Making Changes</b>	All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes.	0.2	Intermediate
<b>Digital Transformation: What is Big Data?</b>	Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course You'll learn what this means for businesses and how Big Data is already transforming different industries.	0.2	Intermediate
<b>Digital Transformation: What is Blockchain?</b>	Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today.	0.2	Intermediate
<b>Digital Transformation: What is Digital Transformation?</b>	Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, You'll learn more about what Digital Transformation is, and how its impacting almost every organization.	0.2	Intermediate
<b>Digital Transformation: What is the Internet of Things?</b>	We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact.	0.2	Intermediate
<b>Disabilities in the Workplace</b>	A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination.	0.5	Intermediate
<b>Discipline</b>	Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Discrimination in the Workplace</b>	100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace.	0.25	Intermediate
<b>Discrimination Prevention</b>	Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination.	0.5	Intermediate
<b>Diversity in the Workplace</b>	Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers.	0.25	Intermediate
<b>DOT Alcohol and Drug Testing for Drivers</b>	Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process.	0.75	Intermediate
<b>DOT CSA Awareness</b>	The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur.	0.75	Intermediate
<b>DOT ERG Introduction</b>	The Department of Transportations Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.25	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>DOT HAZMAT - Safety Training</b>	Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT).	0.5	Intermediate
<b>DOT Hours of Service Compliance</b>	The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves.	0.75	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Alcohol</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing.	1	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Drugs</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing.	1	Intermediate
<b>DOT Roadside Inspections</b>	Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections.	0.25	Intermediate
<b>Downcycle, Upcycle, Precycle, and Recycle: Waste Prevention and Reuse</b>	This interactive webcast explores the concepts of downcycling, upcycling, precycling, and recycling. In an era of resource conservation, the idea of reuse is paramount to meeting sustainability goals. We will introduce green-minded professionals to the concepts of downcycling (reclaiming), upcycling (refashioning), precycling (reducing waste), and recycling (reuse). We will focus on the environmental, economic, and social benefits of these four types of waste prevention. In addition, we will look at the relationship between waste reuse and technological advancement. Lastly, we will explore case studies of cutting edge waste reuse and reduction.	2	Fundamental
<b>Driven Piles: Introduction to Static Analysis Methods</b>	Driven piles are a dependable and cost effective deep foundation solution to maintain the integrity of structures. Produced as long columns of steel, timber, or concrete, they provide additional support to structures on land and over water, especially during natural disasters such as floods and hurricanes. Testing of installed piles can determine the load carrying capabilities of the pile, ensuring the strength and stability of the foundation before construction begins. This 1-hour interactive online course is the third of a series of courses on driven piles. This course covers an introduction to static analysis methods, including basics of static analysis, events during and after pile driving, load transfer, effective overburden pressure, selection of design soil strength parameters and factors of safety. Other courses cover design of single piles and design of pile groups. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Driven Piles: Pile Type and Selection</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. This 2-hour interactive online course covers the many different types of piles available and explains the appropriate conditions for each type of pile. There is also a section covering the different types of degradation and how each pile substance might respond to these difficult environmental circumstances. The information is provided to help designers choose the best pile type for any given project. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driven Piles: Static Analysis - Pile Groups</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base which can be used in different types of foundations. This 3-hour online course is the fifth course in a series on pile design. This course reviews static analysis of driven pile groups, including bearing capacity analysis of pile groups in cohesionless soils, cohesive soils and layered soils. The course material covers analysis of uplift capacity and lateral capacity, special design considerations such as downdrag, lateral squeeze of foundation soil, bearing capacity of piles in soils subject to scour, and soil and pile heave. This course also addresses additional design considerations including time effects on pile capacity, effects of construction techniques, plugging of open pile sections, and pile driveability. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Driven Piles: Static Analysis - Single Piles</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base that can be used in different types of foundations. This 3-hour interactive online course is the fourth course in a series on pile design, covering static analysis of single driven piles. This course reviews bearing capacity analysis of single piles in cohesionless soils, in cohesive soils, in layered soils and on rock. Analysis of uplift capacity and lateral capacity is also reviewed. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles, including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Subsurface Exploration and Testing</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. Driven piles easily adapt to variable site conditions to achieve uniform minimum capacity with high reliability, thus eliminating uncertainty due to site variability. This 2-hour interactive online course covers the subjects of subsurface exploration, in-situ testing and laboratory testing. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driving Hazard Recognition</b>	Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, You'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely.	0.25	Intermediate
<b>Driving Large Vehicles and Heavy Equipment</b>	Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles cars, vans, SUVs, and pickup trucks have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions.	0.25	Intermediate
<b>Driving Preparation</b>	Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you.	0.25	Intermediate
<b>Ductile Iron Pipe</b>	Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Effective Delegation</b>	LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them.	3	Intermediate
<b>Effective Delegation: 01-What to Delegate</b>	Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task).	1	Intermediate
<b>Effective Delegation: 02-Issues in Delegating</b>	See and practice the issues that arise in delegation discussions and how to effectively handle them.	1	Intermediate
<b>Effective Delegation: 03-Your Path to Delegating</b>	Learn and apply the five-step process for delegating tasks to members of your team.	1	Intermediate
<b>Effective Delegation: 04-Mastering Delegating</b>	Practice Delegating in a full scenario situation.	1	Intermediate
<b>Effective Delegation: 05-Delegating Health Check</b>	Test your ability to apply Delegating concepts in this skills-based scenario assessment.	1	Intermediate
<b>Effective Discipline: 01-Taking Disciplinary Action</b>	See and rate examples of disciplinary action and understand the importance of designing messages for the team member.	1	Intermediate
<b>Effective Discipline: 02-The Disciplinary Process and Documentation</b>	Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation.	1	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Effective Discipline: 03-Responding to Team Member Reactions</b>	Since team members often react negatively to discipline, practice how you will respond in these situations.	1	Intermediate
<b>Effective Discipline: 04-Your Path to Effective Discipline</b>	Learn and apply the five-step process for effectively disciplining a team member.	1	Intermediate
<b>Effective Discipline: 05-Mastering Effective Discipline</b>	Practice Effective Discipline in a full scenario situation.	1	Intermediate
<b>Effective Discipline: 06-Effective Discipline Health Check</b>	Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment.	1	Intermediate
<b>Effective Presentation Skills</b>	In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation.	1	Intermediate
<b>EHS Regulatory Overview</b>	Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations.	1	Intermediate
<b>Electric Pallet Jack Safety</b>	Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures.	0.5	Intermediate
<b>Electric Power Substations</b>	This webcast covers basic information regarding electric power substations and the distribution of electric power, including components of power substations, individual equipment components, and electric power distribution systems. General information related to operational aspects of substations and distributing electric power is included.	1	Fundamental
<b>Electric Shock</b>	Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone.	0.5	Intermediate
<b>Electrical Installations 1: Electrical Laws, Components and Circuits</b>	The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time.	1	Fundamental
<b>Electrical Safety General Awareness</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Electrical Safety Introduction (Z-462) for Canada</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, regulatory requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Electrical Work for Florida Pool Contractors</b>	Are you up-to-date on the 2017 NEC requirements for swimming pools? This interactive online course will review NFPA 70, 2017 National Electrical Code, Article 680 Parts I and II, which contain the requirements for swimming pools, fountains, and similar installations. Included will be a review of certain definitions and the requirements associated with ground fault protection, corrosive environments, motors, lighting, receptacles, and equipotential bonding. Various changes associated with the 2017 NEC will also be highlighted.	1	Advanced
<b>Email and Messaging Safety</b>	Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft.	0.25	Fundamental
<b>Email Basics</b>	Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one.	0.5	Intermediate
<b>Email Etiquette</b>	Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication.	2.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Emission Controls	One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions.	1	Intermediate
Employee Discipline	Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results.	1	Intermediate
Employee or Independent Contractor: The Risk of Misclassification of Employees	A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, et cetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors.	0.5	Fundamental
Energy Management Exercise, and Safety	Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done.	0.5	Intermediate
Environmental Awareness	Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it. This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident.	0.25	Intermediate
Environmental Driving Hazards	Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards.	0.25	Intermediate
Equipment Hazard Basics	Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards.	0.25	Intermediate
Ergonomics Economics	What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings.	0.5	Intermediate
Ergonomics for Industrial Environments	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
Ergonomics for Industrial Environments for Canada	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
Ergonomics for Office Environments	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
Escape Respirators and SCSRs	A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR.	0.53	Intermediate
Essential Skills of Communicating: 01-Empowering Leadership Communication	Utilize an empowering and dynamic communication process to increase team members motivation and commitment.	1	Intermediate
Essential Skills of Communicating: 02-Craft Clear and Concise Messages	Construct and express clear and concise messages in both written and spoken communication.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member	Deliver messages that address the interests of the listener.	1	Intermediate
Essential Skills of Communicating: 04-Listen To Communicate	Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others.	1	Intermediate
Essential Skills of Communicating: 05-Manage Nonverbal Behavior	Make verbal and nonverbal communication congruent to reinforce the intent of messages.	1	Intermediate
Essential Skills of Communicating: 06-Impactful Feedback	Provide the rationale for your feedback, whether to reinforce or improve performance.	1	Intermediate
Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating	Practice the skills learned in Essential Skills of Communicating in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 01-The Work of Leaders	Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path.	1	Intermediate
Essential Skills of Leadership: 02-Focus on Behavior	Base discussions about performance and work habits on behavior rather than on personalities and attitudes.	1	Intermediate
Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem	Acknowledge contributions, results and accomplishments to enhance self-esteem.	1	Intermediate
Essential Skills of Leadership: 04-Encourage Team Member Participation	Involve team members in goal setting, problem-solving and decision-making.	1	Intermediate
Essential Skills of Leadership: 05-Lead Effective Meetings	Deploy meeting management skills to meet the goals of the meeting in the available time.	1	Intermediate
Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership	Practice the skills learned in Essential Skills of Leadership in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check	Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment.	1	Intermediate
Essentials of I-9 Compliance	To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers. There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	0.5	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Essentials of Lean Manufacturing</b>	What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to think Lean and apply Lean methods and tools to improve the quality and efficiency of your company.	1	Intermediate
<b>Essentials of Quality Concrete</b>	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
<b>Ethics for Certified Planners</b>	Most planners will work either in the public sector or in close connection with the public sector at some point in their professional career. Planners associated with the public sector have a unique charge to make ethical policy decisions with the welfare of citizens in mind. The goal of this 2-hour interactive online course is to expose planners to the importance of ethics within the planning profession and develop a thorough understanding of the American Institute of Certified Planners (AICP) Code of Ethics and Professional Conduct. This course explains the importance of the AICP Code of Ethics and Professional Conduct and helps planners hone their ethical problem solving skills through practice ethical scenarios. This course will also cover some of the most common ethical considerations within the planning profession, including: <ul style="list-style-type: none"> <li>Serving the Public Interest</li> <li>Social Responsibility</li> <li>Environmental Responsibility</li> <li>Consequences of Policy Implementation</li> <li>Interrelatedness of Decisions</li> </ul>	1.5	Intermediate
<b>Ethics for Professionals</b>	What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently.	1	Fundamental
<b>Ethics for Texas Residential Contractors</b>	Residential contractors are responsible for creating and maintaining safe homes for their communities. Contractors are considered to be professionals and should always act in an appropriate and professional manner; therefore it is important to have an understanding of the ethics that govern this profession. The goal of this 1-hour interactive online course is to examine chapters in the Texas Statutes Property Code to develop a working knowledge of professional ethics and an understanding of the complexities of professional decision-making. The following sections from the Texas Statutes Property Code will be discussed in this course: <ul style="list-style-type: none"> <li>Title 4: Chapter 28. Prompt Payment to Contractors</li> <li>Title 5: Chapter 53. Liens</li> <li>Title 16: Chapter 418. Prohibited Practices</li> </ul>	1	Fundamental
<b>Ethics: Shades of Green</b>	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
<b>Ethylene Oxide Safety</b>	This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided.	1	Intermediate
<b>Everyone is a Leader</b>	For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyone's benefit.	0.5	Intermediate
<b>Excel Basics for Mac</b>	Get Started with Microsoft Excel - The Most Useful Software Ever Created Excel can do almost anything - crunch numbers, create lists, store data, edit budgets, and more. In this basics course we'll show you how to get started with Excel on a Mac, including using the most popular features. Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!	2.25	Fundamental
<b>Excel for Project Management</b>	Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Excel: Creating Dashboards</b>	Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that.	3	Fundamental
<b>Excel: Data Analysis With Pivot Tables</b>	Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016.	2.5	Advanced
<b>Excel: Introduction to PowerPivot</b>	Learn How To Transform Excel Into Your Big Data Power Tool Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course we'll show you everything you need to know in order to install and start using Power Pivot in Excel.	1.25	Fundamental
<b>Excel: Power Functions</b>	Learn to Use the 10 Excel Functions Recommended by the Experts. Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, its guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis.	1	Fundamental
<b>Exit Routes, Emergency Action Plans &amp; Fire Prevention Plans</b>	A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that will help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes.	1	Fundamental
<b>Explosive and Flammable Chemicals</b>	A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented.	1	Intermediate
<b>Eye and Face Protection</b>	Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment.	1	Intermediate
<b>Facilitating Meetings and Groups</b>	LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals.	7	Intermediate
<b>Fall Prevention and Protection - General Industry</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	1.05	Intermediate
<b>Fall Protection for Canada</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	0.75	Intermediate
<b>False Alarm Prevention</b>	Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Fatigue Management</b>	Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue.	0.25	Intermediate
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fire and Smoke Dampers Simplified</b>	Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies.	1	Intermediate
<b>Fire Essentials and Fire Science</b>	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
<b>Fire Extinguisher Safety</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.73	Intermediate
<b>Fire Extinguisher Safety for Canada</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.5	Intermediate
<b>Fire Safety</b>	Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Fire Safety for Canada	This course is intended for Canadian-based companies and individuals and meets Canadian regulations. Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate
Fire! Designing Means of Escape	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
First Aid - Alcohol and Drug Overdose	Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, You'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone whos overdosed on alcohol or drugs, and first aid to help the person whos overdosed.	0.25	Intermediate
First Aid - Animal and Human Bites and Scratches	People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, You'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person.	0.5	Intermediate
First Aid - Automated External Defibrillator (AED)	In some first aid situations, the victims heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the persons heart back into a normal rhythm. In this course, You'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED.	0.53	Intermediate
First Aid - Bleeding Emergencies	There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide.	0.5	Intermediate
First Aid - Breathing Emergencies	People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course You'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance.	0.25	Intermediate
First Aid - Broken Bones and Dislocations	Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course You'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when its necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided.	0.25	Intermediate
First Aid - Burns	Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity first degree, second degree, and third degree. In this course, You'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns.	0.5	Intermediate
First Aid - Cardiopulmonary Resuscitation (CPR)	If a persons not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, its important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained.	0.25	Intermediate
First Aid - Dehydration	Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration.	0.25	Intermediate
First Aid - Diabetic Emergencies	Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, You'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia).	0.5	Intermediate
First Aid - Eye Injuries	A persons eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes.	0.25	Intermediate
First Aid - Fire Ant Bites and Stings	Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas youre most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings.	0.25	Intermediate
First Aid - Flying Insect Stings	Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they arent aggressive and they dont seek to sting humans. However, when stings do occur, theyre typically minor and require only limited first aid. In other cases, however, especially if the person whos stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, You'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic.	0.25	Intermediate
First Aid - Head Injuries and Concussions	Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, You'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness.	0.27	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>First Aid - Head, Neck, Back, and Spine Injuries</b>	Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations.	0.25	Intermediate
<b>First Aid - Heart Attacks and Cardiac Arrest</b>	Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest.	0.25	Intermediate
<b>First Aid - Initial Steps</b>	It's not always clear what to do in a situation that requires first aid. Especially if it's an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victim's airway is clear; checking to see if the victim is breathing; and checking to see if the victim's circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid.	0.53	Intermediate
<b>First Aid - Poisoning</b>	The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures.	0.25	Intermediate
<b>First Aid - Scorpion Stings</b>	Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites.	0.25	Intermediate
<b>First Aid - Seizures</b>	A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, You'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure.	0.25	Intermediate
<b>First Aid - Shock</b>	When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock.	0.25	Intermediate
<b>First Aid - Snake Bites</b>	Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid.	0.25	Intermediate
<b>First Aid - Spider Bites</b>	Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, You'll learn basic first aid for minor spider bites. In addition, You'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone.	0.25	Intermediate
<b>First Aid - Sprains and Strains</b>	Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for training sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care.	0.25	Intermediate
<b>First Aid - Stroke</b>	A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Association's F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures.	0.25	Intermediate
<b>First Aid - Tick Bites</b>	Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, You'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite.	0.25	Intermediate
<b>First Aid - Unconsciousness</b>	People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid.	0.25	Intermediate
<b>First Responder Operations Level Refresher</b>	This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics.	8	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>FL Statutes Ch. 489, Part I: Construction Contracting 2 [V.06]</b>	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This 4-hour online course is the second of two courses based on Title XXXII, Chapter 489 of the Florida 2006 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
<b>FL Statutes, Chapter 489, Sections 101 - 114: Construction Contracting [V.02]</b>	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
<b>Flammable and Combustible Liquids</b>	This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team.	0.5	Intermediate
<b>Florida - Wind Design and Wind Mitigation Requirements</b>	The Sunshine State is known for its beautiful beaches and tropical weather. Surrounded by warm ocean waters, it is this location that makes it especially vulnerable to severe tropical storms. Winds from these storms can cause severe destruction; therefore, the State of Florida has enacted building regulations to help minimize the damages caused by severe storms. This interactive online course will cover the latest wind design and wind mitigation requirements from the Florida Building Code (based on ASCE 7-10, the 2010 version of the ASCE standard). In this course, we will cover what is applicable in this building code, types of issues covered in the wind design arena, and changes to the wind speed maps. Other issues covered include exposure of a building site, opening protection and enclosure classifications for how to protect a building in wind regions. The code has an alternate all heights method, which will be covered briefly. We will also talk about roof and wall components, and the special requirements for those components in high velocity hurricane zones, or more specifically, south Florida.	1	Fundamental
<b>Florida Building Inspectors: Ethics</b>	Florida Building Inspectors, like other workers upon whom the public depends for impartial assessments, are subject to certain ethical mandates that prohibit conflict between public duty and private interests. This 1-hour interactive online course covers the chapters that apply to building inspectors based upon the Florida Commission on Ethics' Code of Ethics for Public Officers and Employees, Chapter 112, Part III, F.S., and Chapter 468, Part XII, F.S. The course also takes a look at ethical issues that may arise on the job, and gives the guidelines many inspectors use to uphold their own reputations and that of their profession.	1	Fundamental
<b>Florida Construction Contracting: Chapter 489, Section 101-114</b>	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
<b>Florida Construction Lien Law, Chapter 713</b>	This course covers Chapter 713 Part I of the Florida Statutes which addresses Construction Liens. We have prepared it with contractors, laborers, subcontractors, sub-subcontractors, and materialmen in mind to familiarize you with the core concepts in this Chapter. Our goal is to increase your understanding of the terms and concepts used in Chapter 713 so you are familiar with them when reviewing the text of the statutes for yourself or conferring with your own counsel on Construction Liens. We will review key portions of Chapter 713 and elaborate on them with explanatory notes and commentary. For the full text of each statute please refer to the Florida Statutes. These can be found at: <a href="http://www.leg.state.fl.us/Statutes/">http://www.leg.state.fl.us/Statutes/</a> Because this is an evolving law, you should consult legal counsel with any questions you may have.	1	Fundamental
<b>Florida Engineering Laws and Rules</b>	It is important for engineers to avoid illegal activity or immoral conduct by familiarizing themselves with Florida's laws and rules. The purpose of this interactive online course is to provide engineers with the bare essentials of laws pertaining to their field in the state of Florida. The rules presented here are not intended to serve as a substitute for actual statutes and laws but rather as introductions and summaries of the law per the current Florida Statutes.	1	Intermediate
<b>Florida Laws and Rules for Electrical and Alarm Contractors Based on Published Florida Statutes</b>	This interactive course will review three Florida specific documents. First we'll review Florida Statute 455 General Provisions related to Business and Professional Regulation. Included will be information concerning licensing, examinations, penalties, and address of record. We'll then review Florida Statute 489, Part II, Regulation of Professions and Occupations related to Electrical and Alarm System Contracting. Included will be information concerning definitions, renewals, alarm system agents, alarm confirmations and audible alarms. And last, we'll review Florida Administrative Code 61G-6 related to the Electrical Contractor Licensing Board. Included will be information concerning continuing education, disciplinary guidelines, burglar alarm system agents, and identification cards.	1	Fundamental
<b>Florida: Building Inspector's Laws &amp; Rules</b>	This informative course thoroughly explores the state of Florida's rules and regulations for building code administrators, building code inspectors and plans examiners. Requirements from Chapter 61G19 of the Florida Building Code Administrators and Inspectors Board are presented as well as a look at Chapter 468 from the Florida Statutes which discusses similar state regulations. In addition, FS Chapter 553 has been added. Chapter 553, Florida Statutes (F.S.), Part IV, is known as the Florida Building Codes Act. This statute addresses building construction standards and provides for a unified Florida Building Code. The information provided will keep any interested building professional informed on the latest licensing, penalty, certification, and education specifications for the state of Florida.	2	Fundamental
<b>Forklift Safety</b>	Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHA's general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks.	0.73	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Forklift Safety for Canada</b>	Give your forklift safety a boost. This course covers basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. This course includes important information required by general industry standards as well as best practices on operating powered industrial trucks. This course can be used as an introduction to forklift safety and operation or as a refresher on forklift basics. This training video provides information on the most common types of forklifts used in general industry and warehouse environments; it doesn't cover rough terrain forklifts, aerial work platforms, or forklifts with extendable booms.	0.75	Intermediate
<b>Forklifts - Reducing Product Damage</b>	This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators.	0.25	Intermediate
<b>Formaldehyde Awareness</b>	Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas.	0.25	Intermediate
<b>Formation Evaluation by Wireline Logging</b>	This course is designed to convey the basics of formation evaluation by wireline logging technique to the construction professionals and learners. Wireline logging operations have a sensitive and critical importance as it deals with complex electronic and mechanical tools, radioactive and nuclear sources. For a new person in this field, it is essential to have sound theoretical knowledge about formation evaluation by wireline logging techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and tools, he/she may not be recommended for any field work. This course is important to impart basic knowledge of wireline logging to assist drilling operation and formation evaluation; it also covers basic earth formation parameters and calculations.	1	Fundamental
<b>Fracking: Environmental Consequences</b>	Hydraulic fracturing is done with surprising precision and with an eye on the environment, yet it is interesting how the public reacts to the practice in relation to other techniques used throughout the world. Valid points are made on both fronts. The major concern against fracking resides in the overall health and well-being of people close to a well site, as well as the land, water, and air that might be adversely affected. With proper examination and logic, this course was developed to provide insight and reason in a practice fueled by profit for some and by civil concern for others. We will explore the history, public and media perception, and environmental and economic impacts. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>From Project Manager to Principal 1: Foundations of Management</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, and great expertise within each area. The leader who has excelled while dealing directly with projects and design issues must now learn to deal indirectly with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the first chapter of the From Project Manager to Principal course series, and explores the tools each business person needs to develop into a successful manager. Concepts such as transitioning from project developer to a management position, behavior changes, self evaluation and leadership qualities are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 2: Marketing Your Services</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the second chapter of the From Project Manager to Principal course series. The focus of this course is the importance of marketing to project management and the overall success of your business. The material presented will help you better understand the project manager's role in creating winning proposals and successfully marketing your services. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 3: Negotiation Outcomes &amp; Strategies</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the third chapter of the From Project Manager to Principal course series. This course explores the art of negotiation between a firm and a client and the vital role that project managers play in the discussion process. Key concepts such as negotiation strategies, scope, and compromise are presented to help you better understand how to reach a mutually beneficial agreement with your clients. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 4 &amp; 5: Manpower &amp; Quality</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course covers the fourth and fifth chapters of the From Project Manager to Principal course series, and it begins with a look at creating your work force. Important strategies for hiring, interviewing and managing your employees are presented. The course concludes by discussing the importance of quality management and outlines how to create an effective quality control program. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
From Project Manager to Principal 6: Financial Management	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the sixth and final chapter of the From Project Manager to Principal course series. This course looks at the financial responsibilities of the project manager. Topics such as choosing the appropriate accounting method and improving cash flow are presented. The course also includes an in depth look at over 100 ways to cut overhead costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Fuel and Combustion Systems Safety - Business Contingency Planning	Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Combustion Basics	Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment. It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: People	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning	Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly to many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
Fuel and Combustion Systems Safety - Gas Supply System Issues	Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks	Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - Natural Gas Piping Basics</b>	Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks</b>	Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - What You Don't Know Can Kill You!</b>	Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fundamentals of Asphalt Pavement Design</b>	This training presents the fundamentals of asphalt pavement design. This course will introduce asphalt pavement systems, as well as asphalt pavement materials and their properties. The characteristics of asphalt concrete are presented, followed by description of the properties of asphalt pavements. A review of current asphalt concrete mix design methods is presented. The elements of the structural design of asphalt pavements will be discussed in detail. This includes the AASHTO method for determining layer thicknesses. This course will enable pavement engineers, materials engineers as well as materials technicians to gain a better understanding of the fundamentals of the asphalt pavement design process and analysis. Examples and sample calculations are included throughout this course.	2	Fundamental
<b>Fundamentals of Business Crisis Management</b>	In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan.	2.5	Intermediate
<b>Gas Pipelines - Public Awareness</b>	Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162.	1	Intermediate
<b>Gender Identity: Changes Organizations are Making to Increase Awareness</b>	Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness.	0.2	Intermediate
<b>Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace</b>	A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work.	0.2	Intermediate
<b>Gender Identity: What does LGBTQIA+ mean?</b>	When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym.	0.2	Intermediate
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Generating Electricity</b>	This course is an introduction to the basics of generating electricity and covers the primary types of generation used today. The main pieces of equipment used in electricity generation are covered, as well as how generation is managed to meet demand from customers.	1	Fundamental
<b>Geothermal Heat Pumps</b>	This 2-hour interactive online course is an overview of geothermal heat pump systems. The course covers the basics of how a heat pump works and the specific differences between an air source heat pump and a geothermal heat pump. The benefits of using geothermal are discussed as well as the costs including installation costs, energy cost, and maintenance costs. Issues such as how to select the most appropriate antifreeze solution are discussed along with the merits of each type of loop system likely to be used in a geothermal application. There is a test included at the end of this course to assess the student's understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Get It Done: Managing Email</b>	Take Control Of Your Inbox! For many people email is a source of stress, when it really should be a valuable productivity tool. In this course we'll show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email.	1	Fundamental
<b>Get It Done: Sharing Calendars</b>	How Do You Let Everyone Know Whats Going On? Its a common situation: youre working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars.	1.5	Fundamental
<b>Get SMARTER with Goals</b>	What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals.	0.5	Intermediate
<b>Giving Feedback that Gets Results</b>	Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process.	0.75	Intermediate
<b>Gmail Essentials 2015</b>	Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed!	2.25	Fundamental
<b>Going Green with BIM and GIS</b>	The goal of sustainable design is to create healthy environments through environmentally responsible planning and development. Geographic Information Systems (GIS) and Building Information Models (BIM) are both sophisticated technological tools that provide information in a more efficient and readily available manner than traditional design tools (e.g., CAD, maps). Traditional tools prove too costly, too time-consuming, and do not contain sufficient information for environmentally focused assessments and performance analysis. This interactive online course will expose planning, design, and construction professionals to the importance of using Building Information Models (BIM) and Geographic Information Systems (GIS) to work collaboratively throughout projects and to help professionals develop a thorough understanding of how these technological tools provide critical information when making sustainability decisions. GIS and BIM allow project team members to answer questions and solve problems by warehousing data that can be quickly analyzed and easily shared. Both GIS and BIM allow for providing consistency in coordinating changes for the design team and allow advanced visualization before project siting (GIS), design, or construction (BIM) has taken place.	2	Intermediate
<b>Grading and Drainage Design of Modern Roundabouts</b>	Modern roundabouts are a proven and effective safety improvement for roadway intersections. The main focus of roundabout design documentation has been in its traffic capacity and geometry. Once these features are set, the vertical design (grading and drainage) becomes the most critical portion of the design execution and the main component in determining the construction cost of roundabouts. In this interactive online course, engineers, architects, planners and contractors will learn design techniques and best practices to develop efficient roundabout grading and drainage designs.	1	Advanced
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material.ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building Technology for Home Inspectors</b>	This presentation applies to the application of green building technology for house construction and housing components. It will give you a brief overview of how they work and how they are applied including installation and components. We'll talk about the history and the background of green technology, building envelope and modifiers, controlling moisture and temperature, ICFs and SIP-type construction. ICF being insulated concrete forms and SIP being structurally insulated panels, radiant barrier technology, solar, passive and photovoltaic, insulation technology, tankless water heaters, which are all considered green components in the green technology purview.	2	Fundamental
<b>Green Building with Steel - Part 2: Guidelines for Builders, Trades and Inspectors</b>	Green Building is rapidly becoming mainstream. Are you ready to meet the demands? Are you recommending and using steel as a primary structural building material? Do you know steel's level of recyclability and efficiency of assembly. This interactive online course will teach you Green Building using steel, with a focus on Cold-Formed Steel Framing. You'll get what you need to know the key elements that make up steel framing; plus you'll get techniques to fit plumbing and electrical components. This is the second course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED RatingsLight Gauge Metal Components for FramingFraming With Steel StudsInsulation and WaterproofingErecting an Engineered Steel HouseCommercial Applications	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Green Building with Steel - Part 3: Light Gauge Metal Components for Framing</b>	The use of steel as a primary structural building material is rapidly becoming mainstream in Green Building. It is inherently recyclable and easy to assemble. You can become an expert very quickly. This interactive online course will teach you to use steel in green building. You'll learn about structural and non-structural steel walls, steel wall components, details of assembly, steel flooring systems, and fasteners. This is the third course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings Guidelines for Builders, Trades and Inspectors Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate
<b>Green Building with Steel - Part 4: Framing With Steel Studs</b>	It makes more sense than ever to use steel as a primary structural building material. It is inherently recyclable and efficient to assemble. That makes it your best choice for sustainable building material. In no time you can be the local expert in green building with steel. This interactive online course gives you Green Building with a particular focus on framing with steel studs using Cold Formed Steel (CFS) and the various methods of building exterior and interior frames. This is the fourth course in the Green Building With Steel series. Additional courses are: Material Attributes, Manufacturing, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications It is helpful to you to take the first three courses in the Green Building With Steel series before beginning this one.	3	Intermediate
<b>Green Building with Steel - Part 5: Erecting An Engineered Red Iron Steel House</b>	Steel as a primary structural building material with its inherently recyclable nature and its efficiency of assembly is the logical and responsible choice for Green Building. You can become an expert in erecting a Red Iron steel frame house and you can learn how to earn the coveted LEED points for your project. This interactive online course provides you with the benefits of building with red iron steel as well as instructions for constructing floors, walls, and roofs. You also get information on secondary framing and finishing. Lastly you receive what you need to qualify for LEED certification. Other courses in this Green Building With Steel series provide additional information on the application and technical aspects of Steel Design and Construction. Material Attributes, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Framing With Steel Studs	4	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or underused out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series.	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Soil testing Hydrologic and hydraulic analysis Vegetation assessment, preservation, and transplantation Invasive species evaluation.	1	Intermediate
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Working with community groups Attractive Streetscapes safe for pedestrians and vehicles Improvements that promote good health in cities Upgrades that are cost-effective and sustainable Changes that provide for increased security.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 4: Best Practices for Pavement</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Pavement lifecycle Pervious vs. impervious pavement Albedo or Reflectivity of pavement Pavement materials A materials program Material applications	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Mechanisms to affect right-of-way construction by private utilities Technology to minimize pavement damage and degradation Upgrades to utility installation and maintenance	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Integrated stormwater management planning Water pollution prevention Construction runoff prevention Surface pretreatments for filtering runoff Catch basin inserts and water quality inlets Detention and Infiltration structures Constructed wetlands	3	Intermediate
<b>Green Infrastructure 7: Best Practices for Landscape</b>	This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Citywide landscape planning Maintaining and enhancing biodiversity and ecology Landscapes capable of high rates of stormwater absorption, infiltration, and treatment Tree planting for quantity, density and diversity Turfgrass reduction Plant selection Designing water-efficient landscapes Pest Management	3	Intermediate
<b>Green Infrastructure 8: Best Practices For Construction</b>	This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts	1	Intermediate
<b>Green Street Retrofit</b>	How do you define a green street ? This interactive, online course tells the story of street renovations implementing Low Impact Development design strategies. Retrofitting conventional streets into green streets provides stormwater treatment to remove pollutants from stormwater runoff and when feasible allowed to infiltrate as recharge. Monitoring of stormwater runoff volumes and pollutant loads can be conducted to demonstrate the effectiveness of the retrofit projects. Converted green streets also allow for educational potential to raise awareness about stormwater pollution (and solutions). This course will focus on the many environmentally friendly green infrastructure initiatives in Chicago, Illinois.	2	Fundamental
<b>Green Streets</b>	Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and rivers Ensure the street has the least impact on the surrounding environment Help ensure the safety of the pedestrian or bicyclist on the street Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Urban Design</b>	Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements	2	Intermediate
<b>G-Suite Essentials (Google)</b>	Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite.	2.25	Fundamental
<b>Hand and Power Tools</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.38	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Hand and Power Tools for Canada</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.25	Intermediate
<b>Hand Safety</b>	Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries.	0.25	Intermediate
<b>Hand Washing and Hygiene</b>	Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many foodborne illnesses that surround us.	0.25	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.	2	Fundamental
<b>Hazard Communication GHS</b>	Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle.	0.5	Intermediate
<b>Hazard Perception - Hidden Hazards</b>	Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards.	0.25	Intermediate
<b>Hazardous Material Classifications</b>	To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012.	0.5	Intermediate
<b>Hazardous Material Labeling</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options.	0.5	Intermediate
<b>Hazardous Material Storage</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals.	0.25	Intermediate
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>HAZWOPER Air Monitoring</b>	Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results.	0.6	Intermediate
<b>HAZWOPER Chemical Protective Clothing</b>	Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response.	0.38	Intermediate
<b>HAZWOPER Chemical Protective Clothing Selection</b>	Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing.	0.43	Intermediate
<b>HAZWOPER Confined Spaces</b>	All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHA's permit-required confined space regulations and typical confined space emergency response procedures.	0.51	Intermediate
<b>HAZWOPER Decontamination</b>	Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices.	0.65	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
HAZWOPER Emergency Response Plan	Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans.	0.46	Intermediate
HAZWOPER ERG Introduction	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.38	Intermediate
HAZWOPER Hazmat Physical Properties	The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity.	0.33	Intermediate
HAZWOPER Incident Command System	An incident is any event that requires emergency response to protect life or property. OSHA's HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system.	0.7	Intermediate
HAZWOPER Ionizing Radiation Safety	Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous.	0.56	Intermediate
HAZWOPER Medical Surveillance	HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and are not experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed.	0.4	Intermediate
HAZWOPER Overview	Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements.	0.35	Intermediate
HAZWOPER Release Mitigation	Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release. Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability.	0.51	Intermediate
HAZWOPER Respirators	Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response.	0.7	Intermediate
HAZWOPER Risk Assessment	The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents.	0.53	Intermediate
HAZWOPER Safety and Health Program	HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements.	0.25	Intermediate
HAZWOPER Site Control	Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site.	0.61	Intermediate
HAZWOPER Toxicology	A chemical's ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures.	0.51	Intermediate
HAZWOPER: Operations	OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed Emergency plans and hazardous waste informational sources Responses to various hazardous waste sources Medical surveillance programs Site monitoring, engineering controls and work practices Personal Protective Equipment (PPE)	1	Intermediate
Health Effects Caused by Mold	In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Healthy Practices: Nutrition, Exercise, and Safety</b>	We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life.	0.5	Intermediate
<b>Hearing Conservation</b>	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.67	Intermediate
<b>Hearing Protection for Canada</b>	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.5	Intermediate
<b>Heat Stress Causes</b>	Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information You'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat.	0.25	Intermediate
<b>Heat Stress Symptoms and Prevention</b>	Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital.	0.4	Intermediate
<b>Heavy Construction Equipment Basics - Earthmoving &amp; Excavating</b>	Contractors do many types of construction activities that require many different types, sizes and groupings of equipment. Most new construction projects are connected to the earth by some type of foundation system. Utilities are located underground so they are less obtrusive and not in the way. Building sites must drain away from the structure and divert the water to a safe place. All of these activities require excavating and earthmoving. The focus of this 3-hour interactive online course is big iron used for excavating and earthmoving. Discussion is intended to be basic. Content is not intended to be comprehensive. Discussion focuses on the basic principles for heavy equipment selection, grouping and simple costing. Earthmoving equipment discussed includes bulldozers, front-end loaders, motor graders, scrapers, and dump trucks. Excavating equipment discussed includes excavators, backhoes and trenchers. A short test must be completed after each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Heavy Construction Equipment Basics - Lifting</b>	Vertical construction requires building a structure up or away from the surface of the earth. The work requires heavy construction equipment for moving workers, materials and other equipment onto the structure as it is built. Hoisting or lifting loads is an integral part of this construction. How it is to be done must be incorporated into the construction strategy and how much it will cost must be included in the budget. Choosing the right lifting equipment and rigging is mandatory for safe vertical construction. Content included in this 2-hour online interactive course is intended to be basic. Discussion focuses on basic principles for lifting equipment selection, capabilities and uses. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Heavy Equipment Safety Introduction</b>	Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment.	0.75	Intermediate
<b>Heavy Equipment Visibility</b>	When operating heavy equipment, the driver's view is likely to be blocked in several directions. These blind spots can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries.	0.25	Intermediate
<b>Heavy Truck Braking System and Braking Techniques</b>	The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system.	0.25	Fundamental
<b>HEPA High Efficiency Filters</b>	This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPAs are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component.	1	Fundamental
<b>Hexavalent Chromium</b>	Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium.	0.5	Intermediate
<b>Hiring Practices</b>	Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation.	1.25	Intermediate
<b>Historic Preservation: An Introduction</b>	Historic Preservation is the identification, protection and enhancement of historic resources or features. This 1-hour interactive online course covers not only the general underpinnings of the preservation and rehabilitation process, it also outlines the specifics on how to inspect and work with specific materials. Historic structures originate from a wide variety of time periods and areas. Consequently, there are a large variety of different materials examined in this course. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Historic Preservation: Concrete and Terra-Cotta</b>	Terra-cotta and concrete construction have created some of the world's most distinctive and historically significant structures. Unfortunately, many early concrete and terra-cotta buildings are threatened by deterioration. Effective protection and maintenance are the keys to the durability of these materials-many can be saved through preservation projects involving sensitive repair and replacement. This 1-hour interactive online course outlines the historic background of concrete and terra-cotta, the causes of their deterioration, methods to effectively inspect and analyze their current state as well as techniques of maintenance, repair and replacement. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Energy Conservation</b>	With the dwindling supply of energy resources and new efficiency demands placed on the existing building stock, many owners of historic buildings and their architects are assessing the ability of these buildings to conserve energy with an eye to improving thermal performance. This 1-hour interactive online course has been developed to assist those persons attempting energy conservation measures and weatherization improvements such as adding insulation and storm windows or caulking of exterior building joints. In historic buildings, many measures can result in the inappropriate alteration of important architectural features, or, perhaps even worse, cause serious damage to the historic building materials through unwanted chemical reactions or moisture caused deterioration. This brief recommends measures that will achieve the greatest energy savings with the least alteration to the historic buildings, while using materials that do not cause damage and that represent sound economic investments. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Exterior Additions and Substitutions</b>	The Secretary of the Interior's Standards for Rehabilitation require that deteriorated architectural features be repaired rather than replaced wherever possible. In the event that replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual properties. This 1-hour interactive online course discusses the importance of maintaining historic character and illustrates how and when substitute materials may be used to match the appearance and general properties of the historic material without damaging the historic resource. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Rehabilitating Interiors</b>	While the exterior of a building may be its most prominent visible aspect, or its public face, its interior can be even more important in conveying the building's history and development over time. This 1-hour interactive online course has been developed to assist building owners and architects in identifying and evaluating those elements of a building's interior that contribute to its historic character, and in planning for the preservation of those elements in the process of rehabilitation. The information covered applies to all building types and styles, from 18th century churches to 20th century office buildings. The course discusses historic interior paints, and addresses a variety of materials and features: plaster walls and ceilings; wooden doors, molding, and trim; and metal items such as radiators and railings. It provides background information about some of the types of paint which were used in the past, discusses the more common causes and effects of interior paint failure, and explains the principal factors guiding decisions about repainting, including what level of paint investigation may be appropriate.	1	Fundamental
<b>Historic Preservation: Roofing for Historic Buildings</b>	No matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitably fail. A poor roof will permit the accelerated deterioration of historic building materials-masonry, wood, plaster, paint-and will cause general disintegration of the basic structure. This 2-hour interactive online course covers the historic character of a building, describes how to examine and record the existing roof, considers historic craftsmanship and gives detailed instructions on how to properly research, stabilize, repair and replace historic roofs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Hot Work Safety</b>	This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work.	0.47	Intermediate
<b>Hurricane Damage: Wind vs. Water Determination</b>	In many areas, the insurance industry offers expensive insurance against damage by wind and separate expensive insurance against damage from flooding (FEMA offers inexpensive insurance against flood damage). When a person purchases a home, the mortgage company invariably wants its investment covered by a homeowner's policy. A typical homeowner's policy includes insurance for damage done by wind; however, as the typical home is not imperiled by flooding, a policy does not include insurance from damage due to flood waters. Thus the problem faced by the inspector when a hurricane hits. Was the damage caused by the wind or the water? The author of this course spent 15 months covering the damage caused by hurricanes Katrina and Rita in the Gulf and created this 1-hour online course to educate those who are in that predicament due to the loss of their home or business, and those who are providing assistance to the insurance companies. This course takes a look at three specific scenarios of structure damage from the 2005 Gulf Hurricanes and provides numerous photographic examples. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Hurricane Mitigation Techniques and Inspection</b>	This course will help you better understand what the insurance industry is looking for when a Wind Mitigation Form is submitted, especially as it pertains to the High Velocity Hurricane Zone of Miami, Dade, and Broward counties. We will learn how to identify window and door labels for protection; how to evaluate and categorize roof configurations and determine a roof's geometry; and how to point out the only acceptable secondary water resistance (SWR) products for a roof.	2	Fundamental
<b>HVAC Acoustics</b>	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
<b>HVAC Design</b>	This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
HVAC Distribution	This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system.	1	Fundamental
HVAC HEPA Filters	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental
HVAC System Fans	Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations.	3	Fundamental
Hydraulic Design of Storm Sewers	Storm sewers are the hidden workhorse of our infrastructure. They are designed to ensure our urbanized communities remain dry and maintain safety during extreme events. For this reason it is important that storm sewers are designed with special detail and care. This interactive online course will discuss the design of storm sewer systems and its two core theories, the conservation of mass and energy. A sample spreadsheet will be provided as part of the course to help practitioners in the design of storm sewers.	2	Advanced
Hydraulic Fluid Safety	This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries.	0.47	Intermediate
Hydrogen Sulfide Awareness	Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H <sub>2</sub> S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation.	0.25	Intermediate
IICRC 7 Hour General Mold Program	This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	7	Fundamental
IICRC 7 Hour Mold Health Effects and Science Program	This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are: Lesson 1: More Than Mold -Health Effects Associated With Mold and Water Damage Lesson 2: Health Effects Caused by Mold Lesson 3: Mold Safety and Health Lesson 4: The Science of Mold Lesson 5: Mold Sampling	7	Fundamental
IICRC 7 Hour Mold Remediation Program #1	This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	7	Fundamental
Impacts of the 2010 ADA Guidelines	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
Improving Work Habits: 01-Performance Issue or Poor Work Habit?	Distinguish between a performance issue and a poor work habit, which require a different problem-solving process.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Improving Work Habits: 02-Describing the Work Habit</b>	Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions.	1	Intermediate
<b>Improving Work Habits: 03-Keep Ownership with the Team Member</b>	What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit.	1	Intermediate
<b>Improving Work Habits: 04-How Would You Empathize?</b>	Use empathy in your discussions is important for team member self-esteem and buy-in.	1	Intermediate
<b>Improving Work Habits: 05-Your Path to Improving Work Habits</b>	Learn and apply the five-step process for improving poor work habits shown by your team members.	1	Intermediate
<b>Improving Work Habits: 06-Mastering Improving Work Habits</b>	Practice Improving Work Habits in a full scenario situation.	1	Intermediate
<b>Improving Work Habits: 07-Improving Work Habits Health Check</b>	Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment.	1	Intermediate
<b>Increase Your Listening &amp; Communication Power</b>	Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Increase Your Listening Power (Effective Communication)</b>	Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Increasing Building Energy Efficiencies: Policies and Practice</b>	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
<b>Infrastructure 101: Repairing Pandora's Box</b>	What will you find when you open a manhole for repair? For most engineers and utility managers their first introduction to infrastructure management is an emergency call for a manhole collapse or similar catastrophic failure. In part, they can be prepared for this by understanding the root causes of failure and the appropriate types of repair and replacement necessary and by having an appropriate plan of action in place. Preventative and remedial plans require the same level of detail and understanding to avoid recurrence and busted budgets. A manhole repair need not be Pandora's box. In this interactive online course, we will discuss different approaches to infrastructure management, including various materials used in the rehabilitation of manholes. Alternative strategies used to improve safety, reduce public health or environmental risks, and reduce costs will also be covered.	1	Fundamental
<b>Innovative Heat Pump Technology</b>	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
<b>Inspecting for &amp; Filling Out the 4-Point Form</b>	In this course you will learn about the Four Point form where you will learn how to examine four points of a building; the electrical system, the plumbing system, the heating system, and the roofing system. Why do we need a 4-point form filled out? According to insurance underwriter actuaries, these four systems have been statistically expensive to repair or replace. There are statistics showing how the 4-point inspection has saved underwriters substantial dollar amounts. Why should we care? Well, because 80 percent of the population lives in a home that is more than 20-years-old, and if you don't live in one of these homes today, you will eventually as your house grows older. That said, the insurance industry is becoming more proactive when it comes to insuring a home against issues that will cost them money. The boundaries are getting tighter, and the deductibles are getting higher.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>International Building Code &amp; More: About the Codes</b>	A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Fundamental
<b>International Building Code &amp; More: Code Officials and Code Processes</b>	This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Family Residences, Existing Structures and Historic Buildings</b>	This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Finish and Furniture Selection</b>	This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Intermediate
<b>International Building Code &amp; More: Fire Protection Systems</b>	Fire and smoke are the primary threats to the safety of the occupants in a building. Fire and smoke can travel quickly both horizontally and vertically unless special efforts are made to prevent this from happening. The use of rated assemblies in this passive system of fire protection is considered the first step in controlling the spread of smoke and fire. This course will discuss the active fire-protection system and its components, which include detection, alarm, and extinguishing systems, and will provide a fire protection checklist at the end of this course. The overall aim of the fire-protection system is to detect a fire in a building or space, warn the occupants, and suppress the fire until the fire department arrives. If that fire can be detected quickly, occupants have more time to exit the building safely and with less panic. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>International Building Code &amp; More: Means of Egress</b>	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental
<b>International Building Code (IBC) - Assembly Spaces</b>	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code (IBC) - Care Facilities Provisions</b>	This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code Significant Changes to 2012 Edition</b>	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
International Snapshot on Sustainable Infrastructure	The scientific community overwhelmingly agrees that global warming and changing climate patterns will become more disruptive and have detrimental impacts on essential sectors of our society. These changes, such as extreme weather events, rising temperatures, flooding and droughts, all significantly impact our infrastructure. We are faced with simultaneous threats of aging infrastructure, damage from a changing climate, lack of funding and political paralysis. So how do we respond? Looking around the world, who is taking action now and leading innovations on tackling the challenges of creating sustainable infrastructure systems. The aim of this course is to present a snapshot of this complex dilemma.	2	Fundamental
Internet and Computer Policy	As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused.	0.5	Intermediate
Interpersonal Communication	Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Interviewing Skills for Employees	What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview.	0.5	Intermediate
Interviewing Skills for Managers: Conducting an Interview	Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats.	0.5	Intermediate
Interviewing the Right Way	There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position.	0.5	Fundamental
Interviewing the Right Way & Managing the Millennial (RV-PGM145)	The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	1	Fundamental
Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
Introduction to Net Zero Buildings	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental
Introduction to Sustainable Design and Construction Using Green Globes	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Introduction to Sustainable Roof Technologies</b>	Roofs account for one of the largest areas of imperviousness on a site. Impermeable roofs impact storm water quality and quantity, air quality, the urban heat island effect, and the energy needs of the building. This interactive webcast focuses on how we can potentially rethink how we build our roofs to ensure energy efficient buildings, harness energy from the sun to help us reduce our reliance on fossil fuels (nonrenewable energy), manage storm water as a resource, increase air and water quality, and reduce greenhouse gas emissions. We will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. We will conclude with creative applications and site selection and placement considerations of sustainable roofs.	2	Fundamental
<b>Introduction to the ISI Envision Rating System</b>	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
<b>Introduction to Wetlands</b>	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
<b>Investigation of Failures</b>	This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories.	0.5	Intermediate
<b>Irrigation Practices for Commercial and Residential Sites</b>	This Webcast is a full-spectrum discussion of irrigation practices. We'll start with history, discuss fundamentals, move on to proper design, and finish with alternative approaches to traditional irrigation methods. You'll receive valuable information on effective, efficient irrigation methodology for all residential and commercial needs.	2	Intermediate
<b>Irritants, Corrosives and Sensitizers</b>	In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace.	1	Intermediate
<b>It's my Job! Career Growth</b>	While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process.	0.5	Intermediate
<b>Janitorial Safety</b>	Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DONT perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: <ul style="list-style-type: none"> <li>Personal Protective Equipment</li> <li>Back Injury Prevention,</li> <li>Bloodborne Pathogens</li> <li>Slips, Trips and Falls</li> <li>Electrical Safety</li> <li>Chemicals</li> </ul>	0.25	Fundamental
<b>Job Hazard Analysis</b>	This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial workplaces. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.43	Intermediate
<b>Kitchen Safety</b>	With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries. Topics covered also include: <ul style="list-style-type: none"> <li>Prevention of slips, trips and falls</li> <li>Knife use and safety</li> <li>Kitchen machinery</li> <li>Fire and burn prevention</li> <li>Chemical and hazardous materials</li> </ul>	0.25	Fundamental
<b>Laboratory Safety (BBLASA0CEN)</b>	This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Ladder Safety	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.48	Intermediate
Ladder Safety	How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders.	0.5	Intermediate
Ladders and Stepladders for Canada	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.5	Intermediate
Land Development Projects: Design of Infrastructure	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental
Land Development Projects: Developing Feasibility Studies	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
Land Development Projects: Grading and Drainage Design	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
Laser Safety	Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERs). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines.	0.25	Intermediate
Lead Awareness	Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods.	0.25	Intermediate
Lead Safety in Construction: Keeping You Safe and Compliant	Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment.	1	Fundamental
Lead with Strengths	It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths.	0.5	Intermediate
Lead-Based Paint Safety	This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint.	0.5	Intermediate
Leading Engaging Zoom Meetings	Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Leak Detection for Roofs	Leak detection is an important job. Utilization of both scientific and artful techniques enables you to detect a leak in the least time with the least work. To do this, you must first understand the roof system that you are looking at, and know all its components and their function. This 1-hour interactive online course details specific techniques of detecting leaks in various waterproofing media, with an endeavor to give the professional practical and usable techniques that they can employ in the course of handling this important job. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Lean Manufacturing: Continuous Improvement and the PDCA Cycle	Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes.	0.5	Intermediate
Lean Manufacturing: Determining the Voice of the Customer	The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured.	0.5	Intermediate
Lean Manufacturing: Kaizen	Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet todays challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day.	0.5	Intermediate
Lean Manufacturing: Kanban	Did you know the word Kanban is of Japanese origin and translates to billboard or signboard ? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it.	0.25	Intermediate
Lean Manufacturing: Poka-Yoke	This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction.	0.25	Intermediate
Lean Manufacturing: Pull Systems	This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While well introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes.	0.5	Intermediate
Lean Manufacturing: Standardized Work	This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting.	0.5	Intermediate
Lean Manufacturing: Value and Waste	Value represents the need of the customer, the voice of the customer. If companies dont pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value.	0.5	Intermediate
Lean Manufacturing: Value Stream Mapping	Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool.	0.5	Intermediate
Lean Manufacturing: Visual Management	Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information.	0.25	Intermediate
LEED v4 - Certified Buildings Under the O&M and BD+C Categories	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
LEED v4 - Operations and Maintenance	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
LEED v4 and Data Center Construction	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>LEED v4 and the Future of Green</b>	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criterions and its impact on the future of sustainable new construction.	1	Intermediate
<b>LEED v4 for Commercial Office Buildings</b>	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck . Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Existing Buildings: Operation &amp; Maintenance (EBOM)</b>	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
<b>LEED v4 for Healthcare Facilities</b>	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck . Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Hospitality Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck . Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for Interior Design + Construction</b>	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
<b>LEED v4 for New Construction Projects</b>	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
<b>LEED v4 for Retail Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck . Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for School Buildings</b>	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck . We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>LEED v4: Neighborhood Development</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals -- from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
<b>LEED v4: Residential Homes</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental
<b>LEED: Water Efficiency</b>	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Legionella Prevention and Control</b>	In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency.	0.5	Intermediate
<b>LID Technologies</b>	A low-impact development (LID) design approach is defined as a combination of hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. This course will provide an overview and introduction into the philosophy, objectives, various design approaches, economic and environmental benefits, and management practices of low-impact development. Specifically, course will demonstrate how to develop land and maintain the predevelopment hydrologic regime by using current structural and nonstructural storm water management technological approaches.	2	Fundamental
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Line Breaking Safety</b>	Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved. This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break.	0.5	Intermediate
<b>Line-of-Fire Safety</b>	Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards.	0.25	Intermediate
<b>Load Securement</b>	The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety.	0.5	Intermediate
<b>Lockout Tagout for Affected Employees</b>	Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an affected employee is an employee that is affected by the lockout. This course will focus on the general awareness needed for these affected employees.	0.3	Intermediate
<b>Lockout Tagout for Authorized Employees</b>	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.47	Intermediate
<b>Lockout Tagout for Canada</b>	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.5	Intermediate
<b>Machine Guarding</b>	This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery.	0.62	Intermediate
<b>Maintenance Safety</b>	Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment.	0.67	Intermediate
<b>Management 101: 01-Introduction to Management</b>	You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager.	1	Intermediate
<b>Management 101: 02-Leading and Communicating as a Manager</b>	Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting.	1	Intermediate
<b>Management 101: 03-Making an Impact as a Manager</b>	Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Management 101: 04-Taking Control as a Manager</b>	Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department.	1	Intermediate
<b>Managing a Millennial</b>	Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the trophy generation is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	0.5	Fundamental
<b>Managing a Work Group</b>	Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Managing Complaints: 01-The Difficulties of Managing Complaints</b>	Discover the difficulties of managing team member complaints and how to overcome these issues.	1	Intermediate
<b>Managing Complaints: 02-Handling Complaints Using Active Listening</b>	Use active listening skills to effectively handle team member complaints.	1	Intermediate
<b>Managing Complaints: 03-Your Path to Managing Complaints</b>	Learn and apply the five-step process for effectively handling complaints from your team members.	1	Intermediate
<b>Managing Complaints: 04-Mastering Managing Complaints</b>	Practice Managing Complaints in a full scenario situation.	1	Intermediate
<b>Managing Complaints: 05-Managing Complaints Health Check</b>	Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment.	1	Intermediate
<b>Managing Contractors and Temporary Employees</b>	In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department.	3.25	Intermediate
<b>Managing Generation X</b>	You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers.	1	Intermediate
<b>Managing Stress at Work</b>	Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience.	0.5	Intermediate
<b>Managing Technical Professionals</b>	In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals.	2.75	Intermediate
<b>Managing Up: Strengthening Business Relationships</b>	Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Managing Yourself</b>	Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Mastering Access 2016, Basics</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports.	3	Fundamental
<b>Mastering Access 2016, Intermediate</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdata-sheets, field validation, parameter queries, and more.	2.75	Fundamental
<b>Mastering Excel 2016</b>	The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules.	11.5	Advanced
<b>Mastering Excel 2019 - Advanced</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more.	4.3	Fundamental
<b>Mastering Excel 2019 - Basics</b>	There are two kinds of people: Those who are masters at Excel, and those who wish they were. When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019.	4.5	Fundamental
<b>Mastering Excel 2019 - Intermediate</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines	5	Intermediate
<b>Mastering Google Drive (2020)</b>	Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device.	1.25	Fundamental
<b>Mastering Microsoft Project 2016 - Part 1</b>	In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval.	2.25	Intermediate
<b>Mastering Microsoft Project 2016 - Part 2</b>	In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project.	2.25	Intermediate
<b>Mastering Microsoft Teams (2019)</b>	Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams. The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams	5	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Mastering Office 365 (2018)</b>	Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!	11	Intermediate
<b>Mastering OneNote 2016</b>	Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform.	2.5	Intermediate
<b>Mastering Outlook 2016</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	6.25	Intermediate
<b>Mastering Outlook 2016 Advanced</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	3	Advanced
<b>Mastering Outlook 2016 Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!	3.25	Fundamental
<b>Mastering Outlook 2019 - Advanced</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master!	2	Advanced
<b>Mastering Outlook 2019 - Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the time if the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!	2.25	Fundamental
<b>Mastering PowerPoint 2016</b>	Making PowerPoint 2016 Easy & Effective Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	8.25	Intermediate
<b>Mastering PowerPoint 2016 Advanced</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	3.5	Advanced
<b>Mastering PowerPoint 2016 Basics</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	4.75	Intermediate
<b>Mastering PowerPoint 2019 - Advanced</b>	Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	5	Fundamental
<b>Mastering PowerPoint 2019 - Basics</b>	Making PowerPoint 2019 Easy & Effective. Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019.	4.75	Fundamental
<b>Mastering QuickBooks Desktop 2018</b>	Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks.	3	Intermediate
<b>Mastering QuickBooks Online 2018</b>	Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online.	4.25	Intermediate
<b>Mastering Word 2016</b>	Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features.	9.75	Advanced
<b>Mastering Word 2016 Advanced</b>	Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Advanced
<b>Mastering Word 2016, Basics</b>	Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.6	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Mastering Word 2016, Intermediate</b>	Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Intermediate
<b>Mastering Word 2019 - Advanced</b>	Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents.	2.5	Fundamental
<b>Mastering Word 2019 - Basics</b>	Learn the Basics of Microsoft Word 2019 Delivered in Easily Searchable, Highly Informative Content Lessons Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.5	Fundamental
<b>Mastering Word 2019 - Intermediate</b>	Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge	2.75	Intermediate
<b>Material Handling: Tank Trucks</b>	This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Mechanical Power Press Safety</b>	A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the point of operation - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards.	0.5	Intermediate
<b>Meetings That Get Results</b>	Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting!	0.5	Intermediate
<b>Metal on Metal Safety</b>	When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury.	0.25	Intermediate
<b>Metalworking Fluid Safety</b>	Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids.	0.6	Intermediate
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microsoft 365 Admin Tips and Tricks</b>	Learn the secrets to keep your Microsoft 365 tenant safe and secure. As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration.	2	Fundamental
<b>Microsoft Forms Essentials</b>	Learn How Microsoft Forms Makes It Easy to Collect Data via Forms or Quizzes Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms! In this course we'll take a close look at all the features and benefits of this new Office 365 tool!	1.33	Fundamental
<b>Microsoft Lync Essentials</b>	Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue! This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync.	1.25	Fundamental
<b>Microsoft Project 2013 Essentials Training</b>	Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Microsoft Project 2013 Intermediate Training		2	Intermediate
Microsoft Sway Essentials	Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway.	1.25	Fundamental
Microsoft To Do Essentials	Organize Your Day. Track Your To-Dos and Focus on Whats Important The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks.	0.5	Fundamental
Minimum Standards and Practices for Florida Mold Assessors and Remediators	This two-hour recorded presentation is an overview of the Minimum Standards and Practices for Mold Assessors and Mold Remediators as specified in the State of Florida's Rules 61-31.701 and 61-31.702, regulations for Mold Related Services. This course is not limited to mold inspectors and mold remediators. Others that will find this course useful include property owners performing their own mold inspections/mold removal, architects, general contractors and other professionals that find themselves involved in a mold assessment or mold remediation project as part of their normal scope of work, even though they are not holding themselves out for hire as a mold assessor or mold remediator. Due to the amount of material in Florida's Standards and Practices Rule to be covered in this course, this course assumes you have some basic knowledge of the material.	2	Fundamental
Mobile Elevating Work Platform (MEWP) Safety	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements.	0.75	Intermediate
Mobile Elevating Work Platform (MEWP) Safety for Supervisors	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements.	1	Intermediate
Modern React with Redux	This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/ Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including 'JSX, props', state', and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between 'props' and 'state' and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them.	10.5	Intermediate
Modern Shale Gas Development	The course provides an overview of modern shale gas development, as well as a summary of federal, state, and local regulations applicable to the natural gas production industry, and describes environmental considerations related to shale gas development. It describes the importance of shale gas in meeting the future energy needs of the United States including its role in alternative energy strategies and reducing greenhouse gas (GHG) emissions. The course is intended to serve as a technical summary document, including geologic information on the shale gas basins in the U.S. and the methods of shale gas development. By providing an overview of the regulatory framework and the environmental considerations associated with shale gas development, it will also help facilitate the minimization and mitigation of adverse environmental impacts. By so doing, the course can serve as an instrument to facilitate informed public discussions.	3	Intermediate
Mold Awareness and Prevention	Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home.	0.25	Intermediate
Mold Basics	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental
Mold Contractors' Standard of Care	In the absence of a common regulation, the mold remediation industry is expected to follow the Standard of Care . Who defines what that is? Where can it be found? Who is the enforcer? This course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure.	1	Fundamental
Mold Documentation and Report Preparation	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
Mold Remediation	Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Mold Remediation Equipment</b>	The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	1	Fundamental
<b>Mold Reporting for Mold Assessment and Mold Remediation Projects</b>	This course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap.	3	Fundamental
<b>Mold Safety and Health</b>	Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	1	Fundamental
<b>Mold Sampling</b>	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
<b>Montana Electrician 4 Hour Industry Related Program 1</b>	This 4-hour program is presented in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll	4	Intermediate
<b>More Than Mold - Health Effects Associated With Mold and Water Damage</b>	Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health.	3	Fundamental
<b>Motivating Employees</b>	How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization.	0.5	Intermediate
<b>Motivational Ethics</b>	<b>**This course does not provide CEU or PDH credit**</b> A lot of good people find themselves getting fired, or even getting arrested, and have to ask, How did I end up here? You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life. What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful.	1.75	Fundamental
<b>Mounting and Dismounting Heavy Equipment</b>	Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. Mounting and dismounting often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment.	0.25	Intermediate
<b>Movement Joints in Brick Masonry</b>	Brick masonry is one of the most durable exterior building materials in use around the world. It is a preferred product in most climate areas, from subtropical to near arctic, and for buildings from simple residences to monumental international architecture. When Mies van der Rohe proclaimed God is in the details, he may very well have been thinking of masonry construction. Masonry's long term success depends on designers and installers understanding the physics of masonry movement and the time-tested methods of accommodating that movement. This need is particularly important in commercial and institutional buildings due to their more rigid structural construction and the size of their walls. This 1-hour online interactive course discusses a number of different causes of brick movement and the methods that can be used to accommodate this movement.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Multigeneration Management: 01-Workforce Generations</b>	At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace.	1	Intermediate
<b>Multigeneration Management: 02-Leading Silents and Boomers</b>	For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generations series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities.	1.5	Intermediate
<b>Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next)</b>	Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series.	1.25	Intermediate
<b>Multigeneration Management: 04-Cross-Generational Teams</b>	Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course.	1	Intermediate
<b>Multigeneration Management: 05-Developing Generations</b>	When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course.	1	Intermediate
<b>Multistage Centrifugal Pump Maintenance</b>	Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single-stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.	1	Intermediate
<b>Nanotechnology and Sustainability</b>	Are you ready for your world to change due to the contributions of nanotechnology? You can be confident in your understanding of nanotechnology, its impacts, and its relationship to sustainability. You can reap the benefits for yourself and your clients. This webcast gives you the potential that nanotechnology, specifically nano-products, brings to sustainability. Topics include new energy creation and storage opportunities, improved product durability, water quality improvement, pollution mitigation, as well as benefits and potential dangers of nanotechnology.	1	Intermediate
<b>Natural Gas Systems - Sizing and Design Consideration</b>	What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes, Knowing the requirements of the natural gas utility supplier, Venting requirements, Pipe identification and labeling requirements, Pipe support requirements, Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, and Selection of piping material.	1	Intermediate
<b>NC Electrician 2017 NEC Changes: Appliances, Equipment and Special Equipment</b>	This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	2	Intermediate
<b>NC Electrician 2017 NEC Changes: Conductors, Wiring Methods, Receptacles and Switches</b>	This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches. Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Negativity in the Workplace</b>	In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome.	4	Intermediate
<b>New Employee Safety Orientation</b>	All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace.	0.5	Intermediate
<b>NFPA 70E Introduction</b>	NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements.	0.5	Intermediate
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>Night Shift Safety</b>	Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual works shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night.	0.3	Intermediate
<b>Nitrogen Safety Awareness</b>	Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others.	1	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements</b>	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
NPDES Wastewater Discharge Permits	Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects waters of the United States (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course.	0.5	Intermediate
Occupational Safety Training: Introduction to OSHA	Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment.	0.5	Intermediate
Office 365 Groups Essentials	Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team.	1	Fundamental
Office 365 Planner Essentials	Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans.	0.75	Fundamental
Office Safety	While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace. This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace.	0.25	Intermediate
Oil Spill Responses in Facilities	The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill.	1	Intermediate
OJT Mentor	On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more.	0.5	Intermediate
OK Roofing Contractor: Introduction to Sustainable Technologies and Roofing Materials - Concrete Tiles	Part 1 will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. Concrete tile is one of the most durable roofing materials available. Part 2 of this online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail.	4	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Oklahoma 6 Hour 2017 NEC Changes Program	This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314.	6	Intermediate
OneDrive Essentials (2016)	OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others.	1.5	Fundamental
OneNote for Windows 10 Essentials	The Structure You Need with the Flexibility You Want OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and more all in one place. Its almost like having an old-school, three-subject binder-except with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote.	1.25	Fundamental
Online Marketing 101	This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators Youve heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques.	1.5	Fundamental
Order Picker Safety	An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers.	0.25	Intermediate
Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class 1 locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
Oregon Electrician 2020 NEC Changes: 2 Hour Program #1	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Oregon Electrician 2020 NEC Changes: 2 Hour Program #2	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
Oregon Electrician 2020 NEC Changes: 2 Hour Program #3	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
OSHA 10 Hour Construction Program	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: <ul style="list-style-type: none"> <li>Introduction to OSHA</li> <li>Electrical Safety</li> <li>Fall Protection</li> <li>Struck-By &amp; Caught-Between Accidents</li> <li>Personal Protective Equipment (PPE)</li> <li>Scaffolds</li> <li>Cranes</li> <li>Hand &amp; Power Tools</li> <li>Excavations</li> <li>Materials Storage</li> <li>Demolition</li> <li>Hazards in Construction</li> </ul>	10	Fundamental
OSHA Electrical General Requirements	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHA's most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs.	0.5	Intermediate
OSHA Electrical Wiring Methods	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHA's most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard.	0.5	Intermediate
OSHA Pressure Vessel Chemical Cracking	A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health. This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
OSHA Safety: Drilling	The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities.	4	Fundamental
OSHA Safety: Introduction to Powered Industrial Trucks	Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles.	1	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>OSHA Underground Construction</b>	This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: <ul style="list-style-type: none"> <li>Underground Construction Part I</li> <li>Underground Construction Part II</li> <li>Caissons &amp; Cofferdams</li> <li>Compressed Air</li> </ul> After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Outlook 2013: 01-Getting Started in Outlook 2013</b>	Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore whats new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, You'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423.	1.5	Intermediate
<b>Outlook 2013: 02-Message and Contact Management in Outlook 2013</b>	Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations.	1.5	Intermediate
<b>Outlook 2013: 03-Time and Task Management in Outlook 2013</b>	Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, You'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists.	1.25	Intermediate
<b>Outlook Online Essentials (2018)</b>	Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People Sometimes you need a quick way to get to your stuff no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well.	2.5	Fundamental
<b>Overcurrent Protection I - Short Circuit Calculations</b>	This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Overcurrent Protection II - Coordination</b>	This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Overhead Crane Basics</b>	Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging.	0.25	Intermediate
<b>Overhead Crane Basics for Canada</b>	This course covers the basic components and functions of floor-operated overhead cranes used in industrial facilities. It also covers the inspections of cranes and rigging components that many facilities require to be performed before a crane can be operated. This course is based on relevant standards for overhead crane safety, as well as recognized general industry best practices. Using clear and concise diagrams and animations, this training covers the following topics: <ul style="list-style-type: none"> <li>The components of overhead cranes</li> <li>The function of overhead cranes</li> <li>The function of rigging and slings</li> <li>Common pre-use safety inspections for cranes and rigging</li> <li>Importance of personal protective equipment [website use only] This course can be paired with the course Overhead Crane Operational Safety, which goes into detail about safe operating procedures and practices when operating or working near an overhead industrial crane.</li> </ul>	0.25	Intermediate
<b>Overhead Crane Operational Safety</b>	The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment.	0.25	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Overhead Crane Operational Safety for Canada</b>	<p>This course gives workers an overview of the safe operating procedures for moving loads with floor-operated overhead industrial cranes. This course covers the dangers associated with lifting and moving a load with an overhead crane, as well as safe procedures that will avoid those dangers. This course is based on relevant regulations for overhead crane safety, as well as recognized general industry best practices. Using clear, concise 2D and 3D diagrams and animations, this training covers the following topics:</p> <ul style="list-style-type: none"> <li>The importance of knowing the load capacity of the crane and the rigging</li> <li>How the sling angle can affect rigging</li> <li>Safe procedures for lifting, moving, and setting down a load</li> <li>Safe procedures for operating a crane near people</li> <li>The importance of personal protective equipment [website use only]</li> </ul> <p>This course can be paired with our Overhead Crane Basics course, which covers basic overhead crane concepts and the common pre-use inspections required at most facilities.</p>	0.25	Intermediate
<b>Overhead Hoists</b>	<p>Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. We'll show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists.</p>	0.5	Intermediate
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Pallet Jack Safety</b>	<p>A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack.</p>	0.25	Intermediate
<b>Parking Lot Design: Elements of Design</b>	<p>This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.</p>	2	Advanced
<b>Parking Lot Design: Essentials</b>	<p>This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.</p>	2	Intermediate
<b>Parking Lot Design: Parking Studies</b>	<p>This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.</p>	2	Intermediate
<b>Password Security Basics</b>	<p>This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords.</p>	0.25	Fundamental
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	<p>National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.</p>	2	Intermediate
<b>Pedestrian Safety</b>	<p>Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines.</p>	0.25	Intermediate
<b>Peer Checking</b>	<p>Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Performance Management: 01-Preventing Performance Problems</b>	The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out You'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 02-Identifying Performance Problems and Causes</b>	Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 03-Feedback and Counseling</b>	The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 04-Effectively Disciplining Problem Performance</b>	Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change.	1	Intermediate
<b>Personal Accountability for Safety</b>	The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability.	0.25	Intermediate
<b>Personal Protective Equipment</b>	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.67	Intermediate
<b>Personal Protective Equipment for Canada</b>	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.5	Intermediate
<b>Personal Protective Equipment For Mold Remediation Contractors and Consultants</b>	From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment.	1	Fundamental
<b>Persuasion: The Art of Communication</b>	All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade.	1.25	Fundamental
<b>Petroleum and Natural Gas: Mud Logging Sensors and Modern EDR Systems</b>	Technology advances with the passage of time. The existence of portable and digital processors provides proof of this advancement in technology. There is a rising demand for enhanced equipment such as geo-pressure control and administration, contributing to the need for an additional degree of drilling machinery monitoring or observing, mud circulation pressure, volume, and flow ratio sensors. This course discusses drilling data monitoring and drilling data analysis, the types of recorders used to monitor, rotary system management and circulating system management, and properties of mud.	1	Intermediate
<b>Petroleum Drilling Technology</b>	This course is designed to convey the oil and gas drilling aspects to the construction professionals. Drilling operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. Drilling fluids are composed of such chemicals which are dangerous for human health if they are not handled properly. So for a new person in this field, it is essential to have sound theoretical knowledge about it before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of oil and gas, he/she may not be recommended for any field work.	1	Intermediate
<b>Petroleum Instrumentation and Measurement</b>	This course is designed to convey the basics of oil and gas instrumentation and measurement (primarily downstream) to the construction professionals and learners. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about measurement instruments and measuring techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and instruments, he/she may not be recommended for any field work. This course is important to impart basic knowledge of process variables measuring instruments and their measuring techniques which we use in oil and gas downstream. It also conveys the knowledge of process control automation and control valves.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Phasors and AC Circuit Analysis</b>	This course will build a foundation of skills you can use to become familiar with concepts involved with fault load and load flow studies, along with arc flash analysis in electrical power distribution systems. This course is also an ideal refresher course for electrical engineers preparing for the PE Exam (ECE - Power). Basic concepts covered in this course include: The sinusoidal forcing functions and phasor notation Phasor relationships for resistors, inductors, capacitors and the concept of impedance Analysis of single and poly-phase electric circuits Power in single-phase and balanced three-phase circuits Per-unit quantities and changing the base of per-unit quantities	2	Fundamental
<b>Phytotechnologies: Using Plants to Clean Up</b>	Phytotechnologies are a set of techniques that make use of plants to achieve environmental goals. This course will highlight the advantages and limitations of phytotechnology—whereby plants uptake and remove contaminants. We will also cover the cost-effective, natural cleanup methods that have a growing role in the following areas: remediation of environmental contaminants, eco-restoration, engineered wetland systems, and biofuels. The course will conclude with a discussion of current scientific case studies.	3	Fundamental
<b>Pipes and Valves: Basic Pipefitting Skills</b>	Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square.	2	Intermediate
<b>Pipes and Valves: Calculating Offsets</b>	Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets.	2	Intermediate
<b>Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe</b>	Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method.	2	Intermediate
<b>Pipes and Valves: Installing Pipe Hangers and Supports</b>	Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors.	2	Intermediate
<b>Pipes and Valves: Installing Screw and Welded Pipe</b>	Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping.	2	Intermediate
<b>Pipes and Valves: Pipes and Pipe Fittings</b>	This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe.	2	Intermediate
<b>Pipes and Valves: Special Calculations</b>	Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures.	2	Intermediate
<b>Pipes and Valves: Valve Maintenance</b>	This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it.	2	Intermediate
<b>Pipes and Valves: Valve Types and Operation</b>	This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated.	2	Intermediate
<b>Plan Review Techniques for Infrastructure Projects</b>	Infrastructure projects take an immense amount of planning - drawings and specifications, design and construction teams, and communication. You can be the effective coordinator of a successful project if you know the right plan review techniques and use them expertly. This interactive online course teaches you those techniques and gives you the checklists you can start using right away to achieve your goals in completing an infrastructure project you can be proud of.	2	Intermediate
<b>Plumbing Using PVC Pipe</b>	There are numerous different types of PVC pipe, some of which are acceptable for use inside buildings and some which are acceptable only outside buildings. PVC pipe is common for drains and vent pipes, but less common for pressure pipe within buildings. This course will discuss the various types of PVC pipes that are available and where they may be used, provide information on proper installation procedures, and discuss the fittings that can be used to connect PVC to other pipe materials.	1	Fundamental
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations</b>	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups</b>	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling</b>	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure</b>	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan</b>	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope</b>	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope</b>	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities</b>	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule</b>	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration</b>	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 12-Controlling Costs</b>	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 13-Estimating &amp; Budgeting Project Costs</b>	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 14-Project Quality Planning</b>	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control</b>	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources</b>	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources</b>	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications</b>	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Pneumatic Tool Safety</b>	Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chipping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them.	0.25	Intermediate
<b>Pollution Prevention Best Practices</b>	Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source.	0.5	Intermediate
<b>Portable Loading Ramps</b>	Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps.	0.25	Intermediate
<b>Positive Displacement Pump Maintenance Basics</b>	The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures.	1	Intermediate
<b>Power BI Essentials</b>	Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish.	1	Fundamental
<b>Power of an Energy Audit</b>	An energy audit is often the first step in energy consumption reduction. This interactive webcast will introduce green building professionals to the importance of conducting an energy audit to assess energy use and measures to implement for energy conservation. We will discuss the four levels of analysis, including: benchmarking, walk-through audit, detailed/general energy audit, and investment-grade audit. This course will also focus on how auditing can help identify cost-saving opportunities and prioritize improvements. An energy audit is an inexpensive yet powerful way to reduce costs and improve performance. Energy audits also are an important step to help meet greenhouse gas reduction goals. Finally, we will focus on the competitive positioning of energy auditing by touting successes and attracting and engaging more customers.	2	Fundamental
<b>Power Up PowerPoint</b>	Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must. Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience. Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to power up your next presentation!	2.75	Intermediate
<b>Powerful Presentations</b>	Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results.	0.5	Intermediate
<b>Pressure Washing Best Management Practices</b>	Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water.	0.5	Intermediate
<b>Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project</b>	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
<b>Preventing Intersection Collisions - Cross Traffic</b>	Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic.	0.25	Intermediate
<b>Preventing Intersection Collisions - Rear-ends</b>	More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle.	0.25	Intermediate
<b>Preventing Intersection Collisions - Turning</b>	Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections.	0.25	Intermediate
<b>Preventing Loss of Control Crashes</b>	Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control.	0.25	Intermediate
<b>Preventing Mold Growth</b>	Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth.	1	Fundamental
<b>Preventing Sideswipe Collisions</b>	Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards.	0.25	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Preventing The Spread Of Contagious Illness</b>	This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas Special MRSA precautions Responding to a potential infection Medical diagnosis and treatment of contagious illnesses	0.25	Fundamental
<b>Pricing as a Professional</b>	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Principles of At-Risk Construction Management</b>	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
<b>Principles of Design-Build</b>	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental
<b>Principles of Professional Construction Management</b>	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
<b>Problem Solving</b>	Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Procedure Use and Adherence</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Process Safety Management</b>	Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail.	0.5	Intermediate
<b>Process Safety Management (PSM): 1910.119 Overview and Auditing</b>	The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection.	1	Intermediate
<b>Process Safety Management (PSM): An Overview</b>	This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM.	1	Intermediate
<b>Process Safety Management (PSM): Compliance Audits</b>	Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements.	1	Intermediate
<b>Process Safety Management (PSM): Contractors</b>	On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): Emergency Planning &amp; Response</b>	Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Employee Participation</b>	The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training.	0.5	Intermediate
<b>Process Safety Management (PSM): Hot Work Permits</b>	In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can include welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations.	1	Intermediate
<b>Process Safety Management (PSM): Incident Investigations</b>	There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Management of Change</b>	Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode.	0.5	Intermediate
<b>Process Safety Management (PSM): Mechanical Integrity</b>	Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements.	0.5	Intermediate
<b>Process Safety Management (PSM): Operating Procedures</b>	Methyl isocyanide, aldricarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Process Safety Management (PSM): Pre-Startup Safety Review</b>	On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation.	1	Intermediate
<b>Process Safety Management (PSM): Process Hazard Analysis</b>	Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis.	0.5	Intermediate
<b>Process Safety Management (PSM): Process Safety Information</b>	Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): Trade Secrets</b>	There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safely management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information.	0.5	Intermediate
<b>Process Safety Management (PSM): Training</b>	On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Risk Management</b>	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Project Team Management</b>	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Property Management Safety - Employee Slips and Falls</b>	Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Property Management Safety - Fire Prevention</b>	Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Property Management Safety - Personal Protective Equipment</b>	During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Property Management Safety - Resident Safety</b>	In every property management environment, nothing is more important than the safety of your residents. There are many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Property Management Safety - Resident Slips and Falls</b>	When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection</b>	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Protecting People Against Terrorist Attacks: Structural Design Criteria</b>	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
<b>Protecting Water Systems Through Backflow Prevention</b>	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
<b>Protecting Your Team Against Workplace Violence</b>	Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents.	1	Fundamental
<b>Protection Against Malware</b>	Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies	0.25	Fundamental
<b>Providing Performance Feedback: 01-The Power of Performance Feedback</b>	Discover when to give performance feedback to team members and what sources to use for information.	1	Intermediate
<b>Providing Performance Feedback: 02-Providing Verbal Performance Feedback</b>	Practice providing verbal performance feedback to team members using key concepts in the course.	1	Intermediate
<b>Providing Performance Feedback: 03-Providing Written Performance Feedback</b>	Learn how to provide effective feedback in writing to empower team members.	1	Intermediate
<b>Providing Performance Feedback: 04-Your Path to Providing Performance Feedback</b>	Learn and apply the five-step process for providing timely performance feedback to a team member.	1	Intermediate
<b>Providing Performance Feedback: 05-Mastering Providing Performance Feedback</b>	Practice Providing Performance Feedback in a full scenario situation.	1	Intermediate
<b>Providing Performance Feedback: 06-Providing Performance Feedback Health Check</b>	Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment.	1	Intermediate
<b>Pumping Stations - Pumps, Motors and Electrical Systems</b>	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Pumps: Fundamentals of Centrifugal Types</b>	This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system.	2	Intermediate
<b>Pumps: Operation of Centrifugal Types</b>	This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump.	2	Intermediate
<b>Pumps: Performance and Inspection</b>	This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations.	2	Intermediate
<b>Pumps: Reciprocating Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>Pumps: Rotary Positive Displacement Types</b>	This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
<b>PVC Pipe - Which type should I use?</b>	Poly vinyl chloride (PVC) pipe is used for many applications, including water lines, sewer lines, irrigation, and storm drainage. There are many different types and classes of PVC pipe, made for many different applications. There are many more similarities in PVC than there are differences, but it is important for engineers and architects that use these products to understand the differences. This 1-hour interactive online course is intended to shine some light on the use of products such as SDR 35, C 900 and Schedule 40 pipe. This course is not intended to be an endorsement of PVC for all applications but rather to provide the student with better information upon which to base a design decision. Some of the tables used in this course must be displayed using Microsoft Word. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>R &amp; D Chemical Hygiene</b>	Significant injuries, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory.	1	Intermediate
<b>R &amp; D Waste Management</b>	This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory.	1	Intermediate
<b>Radiation Safety</b>	The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program!	0.25	Intermediate
<b>Radiofrequency (RF) Radiation Hazard Prevention</b>	Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation.	0.66	Intermediate
<b>RCRA - Emergencies, Inspections, and Training</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation.	0.5	Intermediate
<b>RCRA - Generator, Container, and Tank Requirements</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls.	0.5	Intermediate
<b>RCRA - Introduction</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>RCRA - Preparing for Transportation, Manifesting, and LDR</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards.	0.5	Intermediate
<b>RCRA - Special Wastes and Other Requirements</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process.	0.5	Intermediate
<b>Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial</b>	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental
<b>Reinforced Concrete Tilt-Up Panels</b>	The term tilt-up panel is almost self-descriptive. This method of construction has been utilized through history, but only relatively recently have the advantages become economically viable. A combination of labor savings, speed of construction, and good finish quality, has made tilt-up panels more competitive. The following course will explain the tilt-up panel method of construction, itemize some of the current advantages of this construction method, and give an example of the design of a typical warehouse type building constructed of tilt-up walls.	1	Intermediate
<b>Reinforced Masonry Design</b>	What is reinforced masonry? Reinforced masonry is often used for building foundations and exterior walls, for resistance to earthquake and wind loads, and where compressive resistance to loads is required. Where unreinforced masonry has some limited uses, reinforced masonry can be used in most building applications under most loading conditions. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This interactive online course will focus on reinforced masonry design and how the use of this design method is employed everyday for buildings, foundations, and retaining walls. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
<b>Reliability Engineering Essentials</b>	This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world.	1	Intermediate
<b>Report Writing for Home Inspectors</b>	Report writing is an essential element of the home inspection process and it is important that these reports accurately communicate the findings of a home inspection. A well-written report will result in satisfied customers, more referrals, and most importantly, will help keep the inspector out of court and ward off any potential lawsuits. This course will teach home inspectors how to effectively write and communicate the findings of a home inspection in a written report. This course will help the home inspector in choosing the best report writing format, key words to use in the report, and how to protect the inspector from possible legal action.	1	Fundamental
<b>Residential Green Building: Design, Construction, and Accreditation</b>	Green Building is rapidly becoming mainstream, mostly due to increasing environmental concerns, a desire to develop healthier structures, and increasing regulation from the permitting authorities. This 4-hour interactive online course starts by debunking many green building myths and then moves into a comprehensive discussion of its elements. The course takes a close look at green building in relation to many aspects of design and construction including issues dealing with sites, landscaping, foundations, frames, exterior finishes, plumbing, appliances, insulation, ventilation, windows, finishes, and flooring. The course wraps up with information on testing, certification, and accreditation, including a look at the LEED program and the NAHB Green Home Certification Program. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Green Remodeling: Design, Construction, and Certification</b>	This course will introduce residential construction professionals to green building and renovation strategies, practices, and materials. In addition to its positive environmental impacts, green building ultimately results in a healthier and a more affordable home for clients. If a program is implemented effectively, it's also good for the residential remodeler's financial bottom line. The green building and remodeling market continues to grow, providing great opportunities for building professionals to develop and expand their businesses. This course provides a comprehensive discussion of the unique aspects of green remodeling with a focus on building evaluation, deconstruction, handling of hazardous waste, materials recycling and reuse, energy conservation, indoor air quality, use of environmentally safe products, design principles, system planning and construction best practices. The course also provides an overview of green building certification programs, green building professional accreditation programs, and incentives available from government agencies and utilities. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Safety Essentials</b>	As you may or may not know, the top four causes of construction fatalities are Falls, Struck-By, Caught-in-between and Electrocutions. These hazards are ever present in the residential home building process and you are not exempt from these many dangers. This interactive online course will cover various safety topics and will explore how the lack of adherence to these standards are risk factors to the top four construction hazards. Please note that this course is for the express purpose of training workers on residential construction sites only.	1	Fundamental
<b>Resolving Conflicts: 01 - Characterizing Conflict</b>	Discover the four stages of conflict and the impact that unresolved conflict can have on an organization.	0.25	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Resolving Conflicts: 02-Know Your Conflict Behavior</b>	Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations.	1	Intermediate
<b>Resolving Conflicts: 03-Identifying Conflict Behaviors</b>	Identify the conflict behavior exhibited in order to properly handle the conflict.	1	Intermediate
<b>Resolving Conflicts: 04-Your Path to Resolving Conflicts</b>	Learn and apply the five-step process for resolving a conflict between two or more team members.	1	Intermediate
<b>Resolving Conflicts: 05-Mastering Resolving Conflicts</b>	Practice Resolving Conflicts in a full scenario situation.	1	Intermediate
<b>Resolving Conflicts: 06-Resolving Conflicts Health Check</b>	Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment.	1	Intermediate
<b>Respirator Basics</b>	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.47	Intermediate
<b>Respirator Medical Evaluation and Fit Testing</b>	Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail.	0.4	Intermediate
<b>Respirators - Voluntary Use</b>	A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the voluntary use of respirators, there are several requirements they must fulfill.	0.25	Intermediate
<b>Respiratory Protection for Canada</b>	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.5	Intermediate
<b>Retaining Wall Design - Part 1</b>	This 2-hour online course is part 1 of a two part course for analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 involves the description of retaining walls, a review of the soil mechanics necessary to calculate the forces acting on the wall, and resisting the movement of this structure. Further, this course describes the procedure for evaluating the stability of the retaining wall. The body of this course is presented in a word document format which you must download. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Retaining Wall Design - Part 2</b>	This 2-hour online course is part 2 of a two part series on analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 described the process of determining the stability of this type of structure, while this part is involved with determining the internal forces and stresses of the cantilever retaining structure and selecting sizes and spacing of steel reinforcing and dimensions of a reinforced concrete cantilever retaining wall. Appropriate sections and equations of the American Concrete Institute's ACI318 (latest edition) will be referenced in the design process. Due to the extensive amount of math used in this course, it is presented in a Word document format which must be downloaded by the student. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Rewarding Peak Performers</b>	Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the businesses bottom line.	1.5	Intermediate
<b>Roofing - Flexible Membrane Edge Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading and the most critical area for wind loading is the edge of the roofing system. This 2-hour interactive online course provides a design guide for edge systems used with low sloped flexible membrane roofing systems. Another RedVector.com course is available on materials used for flexible membrane roofing and additional courses are available on other design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Roofing - Flexible Membrane Wind Load Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading. This 2-hour interactive online course provides a design guide for low sloped flexible membrane roofing systems. It also includes several design examples that go through the entire design process for wind loading. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Roofing Materials - Asphalt Shingles</b>	One of the most commonly used materials available for roofs is asphalt shingles. This 2-hour interactive online course covers a variety of topics related to asphalt shingles, such as underlayment requirements, ventilation and potential problems with shingles. Asphalt shingles are very common on residential roofs in much of the United States and are also used on smaller commercial buildings. Because they are so common, proper use, specification and design of asphalt shingle roofs are often overlooked. This course will provide guidance for designers of new asphalt shingle roofs and some guidance on replacement requirements for existing roofs. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Concrete Tiles</b>	Concrete tile is one of the most durable roofing materials available. This 2-hour interactive online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Flexible Membranes</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. The materials used for membrane roofs include thermoset materials, thermoplastic materials and modified bitumen materials. This 3-hour interactive online course covers an introduction into these materials and products used with them, including fasteners, insulation materials, adhesives and fabrics. Additional RedVector.com courses are available on design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Rules for Discussing Politics at Work</b>	It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up.	0.2	Intermediate
<b>Safe Backing of Tractor Trailer Rigs</b>	Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing.	0.25	Fundamental
<b>Safe Food Handling</b>	According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Foodborne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: <ul style="list-style-type: none"> <li>Food-borne illnesses</li> <li>Time and temperature control</li> <li>Personal hygiene</li> <li>Preventing contamination</li> <li>Cleaning and sanitizing equipment and utensils</li> <li>Preventing cross contamination</li> <li>Housekeeping and maintenance.</li> </ul>	0.25	Fundamental
<b>Safe Work Permits</b>	This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc.	1	Intermediate
<b>Safety and Health - Advanced</b>	This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Safety and Health - Basic</b>	This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Safety Management</b>	Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility.	1	Intermediate
<b>Safety Management: Barrier Analysis</b>	Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis.	0.25	Intermediate
<b>Safety Management: Change Analysis</b>	Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis.	0.25	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Safety Management: Emergency Action Plans</b>	This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan.	0.25	Intermediate
<b>Safety Management: Events and Causal Factors Analysis</b>	Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors.	0.25	Intermediate
<b>Safety Management: Floor and Walkway Safety and Auditing</b>	Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces.	0.5	Intermediate
<b>Safety Management: Hot Work Permit</b>	This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employers written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin.	0.25	Intermediate
<b>Safety Management: Incident Investigation</b>	As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions.	0.5	Intermediate
<b>Safety Management: Industrial Hygiene Basics</b>	Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards.	0.5	Intermediate
<b>Safety Management: Medical and Exposure Records Access</b>	The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers.	0.25	Intermediate
<b>Safety Management: Near Miss Best Practices</b>	The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization.	0.25	Intermediate
<b>Safety Management: OSHA Recordkeeping</b>	In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes.	0.75	Intermediate
<b>Safety Management: Root Cause Analysis</b>	How many times have you thought a problem was fixed only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used.	0.25	Intermediate
<b>Safety Management: Root Causes of Human Behavior</b>	Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems.	0.5	Intermediate
<b>Safety Management: Safety Inspections and Observations</b>	Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations.	0.25	Intermediate
<b>Safety Management: Slip, Trip, and Fall Prevention Inspections</b>	Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses.	0.5	Intermediate
<b>Safety Management: Task Analysis</b>	When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis.	0.25	Intermediate
<b>Safety Showers and Eye Washes</b>	Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: <ul style="list-style-type: none"> <li>Fundamentals of electricity &amp; associated hazards</li> <li>Using proper materials and components</li> <li>Equipment grounding</li> </ul>	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice (RV-10744)</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: <ul style="list-style-type: none"> <li>Hazardous locations</li> <li>Safe working clearances</li> <li>Safety practices</li> </ul>	2	Intermediate
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Sales 101: Appointment Making</b>	The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including: What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers	1.25	Fundamental
<b>Salesforce Essentials</b>	Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects.	1.25	Fundamental
<b>Saving Time in Outlook</b>	From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include: Using Quick Steps Creating reusable text, searches, and rules to automate things you do often. Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!	0.5	Fundamental
<b>Scaffolding for Canada</b>	This course covers some of the more important regulation requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate
<b>Seawalls and Boat Docks for Home Inspectors</b>	In this course we will cover the inspection of seawalls, boat docks and boatlifts, as well as davits. We will also take a look at the materials used for construction, both used in the old days as well as what's currently being done or new. I'll show you photos of well-constructed and maintained seawalls, as well as pictures of the problems I've encountered while inspecting properties. We will review the anatomy of a seawall, a boat dock, and boatlifts. And I'll give you inspection tips from my experience as we go through the course.	2	Fundamental
<b>Security Begins At The Front Desk</b>	Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your property's lobby. Topics covered also include: <ul style="list-style-type: none"> <li>Protecting Guest Privacy</li> <li>Human Trafficking</li> <li>Emergency Response</li> <li>Key Control</li> </ul>	0.1	Fundamental
<b>Seismic Diaphragm Demands</b>	This course will cover the development of the seismic diaphragm forces based on the IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.10. The demand on a diaphragm during a seismic event is not well understood. Using the Equivalent Lateral Force, this course will review the forces on the diaphragms and compare them to the story forces.	1	Intermediate
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
Self-checking (STAR)	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Set-Up of Engineering Controls for Mold Remediation Projects	This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant.	1	Fundamental
Seven Basic Quality Tools	The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses.	0.25	Intermediate
Sexual Harassment Awareness	In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that person's sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment.	0.25	Intermediate
SharePoint for Site Owners	Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes. Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, You'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding sub-sites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!	1.5	Fundamental
Sharepoint Online Essentials	Share Files and Post Information For Your Team with SharePoint Online. SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team.	0.75	Fundamental
Sharing the Road with Pedestrians and Cyclists	Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians.	0.25	Intermediate
Shop Safety	The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety...your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting	0.1	Fundamental
Shoulder Injury Prevention	In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours.	0.5	Intermediate
Site Planning and Design	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
Site Utility Design: Commercial Buildings	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Skype for Business Essentials	Chat, Call, And Video conference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system.	0.3	Fundamental
Slips, Trips, and Falls	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.48	Intermediate
Slips, Trips, and Falls for Canada	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Small Scale and Micro Scale Wind Applications</b>	Exactly how can we harness the power in wind? Do you need a giant wind turbine? This interactive online course provides an overview of wind technology at a much smaller scale. Topics covered include small scale and micro scale wind technologies, including: applications, estimating wind turbine production, and siting considerations. We will also detail the process for installing small wind turbines and small wind system components and explore the newest research focused on micro (nano) wind technology.	2	Intermediate
<b>Smart Business Writing: 4 Stages to Writing Your Best</b>	Some people think that in the grand scheme of things, excellence in writing isn't all that important as long as you get the General idea across. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing).	1	Intermediate
<b>Smart Business Writing: Emails &amp; Technical Proposals (RV-PGM139)</b>	This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails Tackling the Technical Proposal This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read.	1	Intermediate
<b>Smart Business Writing: How to Write Powerful &amp; Persuasive Emails</b>	Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit Send. This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that tells information and email that sells ; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!	0.5	Intermediate
<b>Smart Business Writing: Short, Sweet and To-the-Point Reports</b>	If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be long, it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers.	1	Intermediate
<b>Smart Business Writing: Tackling the Technical Proposal</b>	Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company.	0.5	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Certificate: A Comprehensive Sales Program</b>	In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of Sales Smart Sales 2: Naming the Decision Maker & Setting Appointments Smart Sales 3: Holding Appointments & Advancing the Sale Smart Sales 4: Dealing with Objections & Closing the Sale Smart Sales 5: Business-to-Business Sales Smart Sales 6: The Sales Cycle	3	Fundamental
<b>Smart Customer Service 1: Courtesies, Attitude, and Ethics</b>	You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet.	0.5	Intermediate
<b>Smart Customer Service 2: Listening for Understanding</b>	As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Customer Service 3: Effective Verbal and Nonverbal Communication</b>	Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone.	1	Intermediate
<b>Smart Customer Service 4: 3 Steps to Successful Customer Interaction</b>	In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	0.5	Intermediate
<b>Smart Customer Service 5: Handling Customer Complaints</b>	This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation.	1	Intermediate
<b>Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding</b>	This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	1	Fundamental
<b>Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140)</b>	This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer Interaction You will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	1	Intermediate
<b>Smart Finances: Creating a Budget that Works for You</b>	A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you.	1	Intermediate
<b>Smart Health: Best Practices to Help You Quit Smoking</b>	According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever.	3	Intermediate
<b>Smart Health: Child Nutrition - How to Avoid/ Prevent Childhood Obesity</b>	Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift!	1	Intermediate
<b>Smart Health: Drinking Responsibly</b>	Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve..	1	Intermediate
<b>Smart Health: Eating Right</b>	In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process.	1	Intermediate
<b>Smart Health: HIPAA Privacy Standards for Everyone</b>	We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly.	1	Fundamental
<b>Smart Health: Managing Your Cholesterol and Blood Pressure</b>	Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands!	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You</b>	Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of exercise, and discuss how to create a successful exercise program that you can use to get started.	1	Intermediate
<b>Smart Health: Proper Posture and Breathing</b>	Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it.	1	Intermediate
<b>Smart Health: Sleeping - How to Ensure You Are Well-Rested &amp; Energized</b>	Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep.	1	Intermediate
<b>Smart Health: Yoga &amp; Meditation - Finding your Inner Chi</b>	Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the Chi using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each.	1	Intermediate
<b>Smart Leadership: Leaders, Model the Way (RV-PGM141)</b>	This interactive online course is presented in two modules: Smart Leadership: What Leaders Do Smart Leadership: Model the Way Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you.	3	Intermediate
<b>Smart Leadership: Leadership Qualities (PGM142)</b>	This interactive online course is presented in two modules: Smart Leadership: Inspire a Shared Vision Smart Leadership: Encourage the Heart Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In Encourage the Heart, you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations.	3	Intermediate
<b>Smart Leadership: Part 1 - What Leaders Do</b>	Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series.	1.5	Intermediate
<b>Smart Leadership: Part 2 - Model the Way</b>	What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: Model the Way. This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 3 - Inspire a Shared Vision</b>	When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Leadership: Part 4 - Challenge the Process</b>	If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things. - Dick Nettel, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, Challenge the Process, you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 5 - Enable Others to Act</b>	In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, You can't do it alone. Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 6 - Encourage the Heart</b>	Most people rate having a caring boss even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, Encourage the Heart. You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Management: Methods for Motivating and Mentoring Your Team</b>	Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company.	2	Intermediate
<b>Smart Management: Business Essentials</b>	You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind.	2	Intermediate
<b>Smart Management: Coaching for Better Performance</b>	There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan.	1	Intermediate
<b>Smart Management: Data Security</b>	Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information.	1	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Management: Effective Performance Review Practices</b>	Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company.	2	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Customer Service</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Sales</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: How to Handle Workplace Challenges</b>	Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles.	1	Intermediate
<b>Smart Management: Key Skills for Managing &amp; Coaching Your Team</b>	Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself.	0.5	Intermediate
<b>Smart Management: Lawful Hiring Practices</b>	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate
<b>Smart Management: Lawful Termination Practices</b>	There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination.	0.5	Intermediate
<b>Smart Management: Managing a Geographically Distributed Workforce</b>	It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process.	0.5	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Management: SMART Goals - Setting Effective Targets for Success</b>	Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success.	1	Intermediate
<b>Smart Management: Successfully Transitioning from Team Member to Manager</b>	Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed.	1	Intermediate
<b>Smart Management: The Art &amp; Science of Delegation</b>	Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tell us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects.	1	Intermediate
<b>Smart Mental Health: Core Values and Finding a Purpose in Life</b>	If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you.	1	Intermediate
<b>Smart Mental Health: Goal Setting and Visualization Techniques</b>	Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives.	1	Intermediate
<b>Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life</b>	This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives.	1	Intermediate
<b>Smart Mental Health: Keys to Successful Parenting</b>	Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible.	1	Intermediate
<b>Smart Mental Health: Managing Anger and Emotions</b>	The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities.	1	Intermediate
<b>Smart Mental Health: Reducing Stress and Anxiety</b>	Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress.	1	Intermediate
<b>Smart Quality: Building Quality Awareness</b>	You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work.	1	Fundamental
<b>Smart Quality: Process Improvement</b>	All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time.	0.5	Fundamental
<b>Smart Quality: Systematic Problem Solving</b>	All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Closing the Call</b>	Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements</b>	Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections</b>	One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics</b>	In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers</b>	The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections</b>	Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning</b>	This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Presenting an Offer</b>	Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action.	0.5	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning</b>	Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process</b>	There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message.	0.5	Fundamental
<b>Smart Time Management: 7 Steps to Regaining Control of Your Day</b>	Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day.	1	Fundamental
<b>Smart Time Management: The 80/20 Rule for Making Every Minute Count</b>	In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many.	1	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: <ul style="list-style-type: none"> <li>Build and maintain a broader network of trusted professionals</li> <li>Generate leads</li> <li>Learn about other companies and their hierarchies</li> <li>Leverage powerful tools to find and reach the right people</li> <li>Tap into the knowledge of their network, and</li> <li>Discover new opportunities</li> </ul> This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Smart Workplaces: Putting Your People First - Personnel Administration</b>	The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: <ul style="list-style-type: none"> <li>Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/ Handbook)</li> <li>Sexual Harassment</li> <li>Equal Employment Opportunity (EEO)</li> <li>Drug Free Workplace</li> <li>The Americans with Disabilities Act of 1990 (Including 2008 amendments)</li> </ul>	2	Fundamental
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)</b>	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
<b>Soils and Foundations: The Low Down on Dirt</b>	Soils issues and ineffective water management methods create serious problems with foundation systems and structures. Understanding the core soil problems faced in the construction industry and methods to overcome them allow you to avoid the associated issues. This interactive online course will teach you about some of the most common issues found with soils and how to overcome them. You will also learn about ICC codes that govern site inspections. Additionally, you will learn about geotech reports and best practices when assessing soil conditions.	2	Intermediate
<b>Solar Panels for Home Inspectors</b>	This course applies to the application and evaluation of solar panels for water heaters, pools and spas, and photovoltaic cells. It will give you a brief overview of how they work and how they are evaluated, including installation and components. We will discuss the different kinds of solar panels found and how they connect to various system components. We will also identify potential and common problem areas with these panels, typically system defects. Terms for intelligent report writing will be part of this class, and how electricity is generated will also be explained.	2	Fundamental
<b>SPCC Inspections</b>	The purpose of the EPA's Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems.	0.5	Intermediate
<b>SPCC Run-On and Runoff</b>	The purpose of the EPA's SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals.	0.5	Intermediate
<b>SPCC Secondary Containment</b>	At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges.	0.5	Intermediate
<b>Speed and Space Management</b>	Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management.	0.25	Intermediate
<b>Spill Prevention, Control, and Countermeasures</b>	When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Steam Pipe Safety</b>	Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes.	0.5	Intermediate
<b>Steel Erection Safety</b>	Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents.	0.5	Intermediate
<b>Stop When Unsure</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Storage and Handling of Category 1 and 2 Flammables</b>	GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location.	0.5	Intermediate
<b>Storage and Handling of Category 3 and 4 Flammables</b>	Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace.	0.5	Intermediate
<b>Storage and Handling of Corrosives</b>	Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times.	0.5	Intermediate
<b>Storage and Handling of Pesticides</b>	Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace.	0.5	Intermediate
<b>Stormwater Discharges from Construction Activities</b>	Stormwater discharge from construction activities can have a significant impact on the water quality of rivers, lakes, and coastal waters with pollutants like sediment, debris, and chemicals. Stormwater discharges from construction activities that impact one or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. This two-hour course discusses the importance of stormwater controls on construction sites as well as a detailed look at specific construction-related pollutants. This course also provides participants with an overview of the new NPDES 2012 Construction General Permit (CGP), which is an update to 2008 CGP. In order to implement the new Effluent Limitations Guidelines and New Source Performance Standards for Construction and Development point sources (C&D rule), construction site operators must meet new restrictions on erosion and sediment control, pollution prevention, and stabilization.	2	Advanced
<b>Stormwater Harvesting: A Green Concept</b>	Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.	3	Intermediate
<b>Stormwater Management: Low Impact Development (LID)</b>	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to help combat the significant stormwater problems produced by traditional development methods. A number of these methods fall into the category Low Impact Development (LID) which focuses on water resource and natural resource protection. This 3-hour interactive online course describes a number of the LID methods that have been proposed. It includes information on applicability, design considerations, limitations, maintenance considerations and pollutant removal effectiveness of these methods. The course is based on guidance provided by the US EPA.	3	Intermediate
<b>Stormwater Pollution Prevention</b>	Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities.	0.5	Intermediate
<b>Storytelling for Business</b>	Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues. Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories.	1.25	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Strategic Brand Management</b>	Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands.	2.92	Intermediate
<b>Stress &amp; Change Management for Design and Construction Professionals</b>	Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
<b>Stress Management and Prevention</b>	Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress.	0.25	Intermediate
<b>Stronger Together: Delegation and Task Management</b>	YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and Play All Day, the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the Play All Day team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!	0.5	Fundamental
<b>Structural Design Philosophies ASD &amp; LRFD</b>	Structural engineering design philosophy is based on determining the demand on an element and designing that element with the capacity to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	1	Intermediate
<b>Structural Insulated Panels (SIPs)</b>	Structural Insulated Panels (SIPs) are a new sustainable structural panelized building material that can be used for roofs, floors, and wall panels. This course will examine various uses and structural limitations on the materials. An exploration of code requirements and constructibility will be included. Design examples will illustrate cost effective approaches to incorporating this new sustainable material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Intermediate
<b>Structural Steel - An Introduction</b>	Are you faced with a project that requires an understanding of structural steel? Do you know the standard steel shapes and how they are connected to erect a building? What is that ASTM specification on the Mill Cert and how does it apply to steel selection? When should you choose structural steel over other materials? This course introduces the student to the basic fundamentals of structural steel.	1	Fundamental
<b>Stucco in Home Building for Home Inspectors</b>	This presentation applies to the application of stucco and bath on exterior walls and ceilings only. We will cover the different types of Stucco applications, such as on wood frame and concrete block houses and with EIFS applications. You will learn how to properly install metal lath and identify potential problem areas in installation. We'll show you critical areas to investigate and not only what to report, but how to report it. Examples of issues and defects will be presented.	2	Fundamental
<b>Substance Abuse Awareness</b>	Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse.	0.5	Intermediate
<b>Successful Hiring</b>	Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview.	1.25	Intermediate
<b>Successful Negotiation</b>	One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, You'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life.	1	Intermediate
<b>Successful Termination</b>	Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee.	1.25	Intermediate
<b>Supported Scaffold Safety</b>	This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Supporting Change: 01- The 3 Phases of Change</b>	Understand the three phases of change and what to expect in each phase.	0.08	Intermediate
<b>Supporting Change: 02-Reactions to Change</b>	Identify the common reactions to change and strategies to best handle each type of reaction.	1	Intermediate
<b>Supporting Change: 03- Your Path to Supporting Change</b>	Learn and apply the five-step process for helping your team through changes in the workplace.	1	Intermediate
<b>Supporting Change: 04-Mastering Supporting Change</b>	Practice Supporting Change in a full scenario situation.	1	Intermediate
<b>Supporting Change: 05-Supporting Change Health Check</b>	Test your ability to apply Supporting Change concepts in this skills-based scenario assessment.	1	Intermediate
<b>Surge Protection</b>	Power surges are a serious ongoing problem causing major damage in the U.S. including losses of data. The solution is surge protection. You can be a successful provider of that solution. First, you need to know what a surge is, what causes it, and the best technology to protect against it. This webcast will teach you about surges so that you can understand what you are dealing with. This course will also introduce you to the types of protection available as well as installation recommendations.	2	Intermediate
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
<b>Sustainable Design: Eco-efficiency of Roofing Insulation Systems</b>	This 1-hour interactive online course explores several popular roofing insulation systems - Expanded polystyrene (EPS), Polyisocyanurate (Polyiso), Extruded polystyrene (XPS), and Sprayed Polyurethane Foam (SPF) - and discusses the influences each one has on sustainable design. It is divided into the following sections: <ul style="list-style-type: none"> <li>Sustainable Development</li> <li>Insulation Systems</li> <li>Technical Aspects</li> <li>Environmental and Economic Aspects</li> <li>Appendix</li> </ul> The course begins with an introduction to sustainable development, compares different plastic insulation systems, then follows up with some technical points on each system. Lastly, eco-efficiency analysis is explained and the environmental and economic aspects of each system are discussed.	1	Fundamental
<b>Sustainable Sites Initiative and the SITES® Rating System</b>	How are you planning on the development of your next site? Have you planned on how you can maintain a healthy ecosystem on your site? This interactive online course introduces course participants to the Sustainable Sites Initiative (SITES®), which is an interdisciplinary effort and framework for the SITES® Rating System based on the concept of ecosystem services, or the benefits that people enjoy from healthy natural systems promoting sustainable land development and management practices. This course includes a discussion of the history and participating entities of the SITES effort. This course will also provide an in-depth study of SITES® Rating System national guidelines and performance benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection for sustainable land design, construction and maintenance practices. This course will conclude with case studies of certified sites fostering resiliency, ecosystem services, human health, materials, soils/vegetation, and water.	2	Fundamental
<b>Sustainable Solutions: Air Pollution</b>	Welcome to the course Sustainable Solutions: Air Pollution. In this course we will explore the relationship between air pollution and site development. Major pollutant sources and their impacts will be discussed along with strategies for reducing embodied energy and creating favorable microclimates that benefit the site and surrounding area. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	2	Fundamental
<b>Sustainable Solutions: Human Health and Well-Being</b>	This course emphasizes the importance of using site design to increase physical activity within a community and provides strategies for doing so. It addresses the subject of maintaining positive mental health through the integration of natural landscapes. Strategies for implementing opportunities for social interaction among adults and spontaneous play among children are also discussed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Invasive Species</b>	A foundational principle of an ecological education is the notion of a species' native status. The idea has to do with where a species evolved and was able to establish without the aid of humans. At the other end of the spectrum, an invasive species is defined as one that is nonnative to a particular ecosystem and whose introduction into that system causes or is likely to cause economic or environmental harm or harm to human health. In this course, we will learn about explore the characteristics of an invasive species and cover methods of how to control and prevent invasive species, such as encouraging high-diversity plant communities, limiting habitat fragmentation, maintaining a healthy disturbance, minimizing resource input, and utilizing an Integrated Pest Management (IPM) plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Loss of Biodiversity</b>	Biodiversity refers to the richness and distribution of species living in a given area. This course will deal with strategies to effectively mitigate negative impacts to habitat and to restore damaged or degraded natural systems on-site. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Urban Flooding and Water Pollution</b>	As the U.S. was discovered and populated, people located their families and businesses near water. Living near water brings many opportunities and some inconveniences. In this course we will review some basics about flooding and water pollution as well as explore some specifics about these catastrophes and the sustainable solutions we can employ to prevent them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Sustainable Solutions: Water Shortages</b>	Over the next forty years, the global population is expected to increase from 6 billion to an estimated 9 billion, yet the world's water supply is constant. Only 3 percent of the global water supply is fresh; the majority of it is locked in ice or stored deep in the earth, making its extraction very expensive. The remaining 97 percent is found in the oceans and is too salty for human consumption, irrigation, and industrial uses. Water from the oceans can be processed; however, desalination is an energy-intensive practice. In this course we will explore site strategies for reducing water waste and recharging groundwater supplies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Urban Design: High Speed Rail</b>	High Speed Rail is an increasingly popular means of rapid passenger transit, capable of speeds up to 250 miles per hour. As demand for more efficient, eco-friendly means of mass transit increases, so does the appeal of high speed rail as a more prominent means of travel in the United States. This 1-hour webcast discusses key concepts of High Speed Rail and compares it with other popular modes of transportation.	1	Intermediate
<b>Swimming Pools: Coordination of Architects &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors &amp; Building Trade Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Engineers &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Introduction to Aquatic Design &amp; Construction</b>	Most architects, landscape architects, civil and mechanical engineers, construction managers, general contractors and their clients only have infrequent encounters with projects containing swimming pools or other aquatic features. College undergraduate and graduate level studies rarely address the subject of swimming pools at all. As a result, most designers and builders have never had to develop the necessary resources in-house for design and construction, and have sometimes relied upon less than reliable sources of information during their project programming. This 2-hour online course will provide the design team members with an overview of the specialized language of pools, and an improved understanding of the problems encountered in aquatic design. Later courses in this series will develop design criteria, coordination issues, and construction methods. This initial course is intended to expand the knowledge-base for non-aquatic designers and improve their communications with aquatics specialists who only occasionally join the rest of the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Swimming Pools: Mechanical and Hydraulic System Design</b>	This 2-hour online course is intended to provide the engineer with basic understanding of hydraulic systems design for swimming pools. Our design process will be cumulative, combining the physical elements of pool design, the regulations governing swimming pools, and engineering criteria all into one process. As they say, you don't want to know how sausage is made! While the engineer may recognize the simple formulae used, he or she may not be familiar with how swimming pools work in the first place. It is the expressed objective of this course to remedy that lack of information and put all that stuff learned in engineering school to work designing pools that are not only fun but safe. Prerequisite Prior to taking this course students should have a passable knowledge of basic and applied fluid mechanics at the college level and/or extensive field experience in the installation and operation of closed-loop pumping systems. The course is not a masters thesis in mechanics, dynamics or thermodynamics. It is a straight forward application of basic fluid mechanics to an everyday problem. If you are looking for superior academic analysis, formula derivation and integral calculus, you're living out a recurring nightmare of mine and are in the wrong classroom! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Tanker Rollover</b>	Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover.	0.25	Intermediate
<b>TDLR TEST Basic Electricity I</b>	This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated.	2	Intermediate
<b>Texas Air Conditioning and Refrigeration Contractors Administrative Rules - Title 16, Chapter 75</b>	This informative interactive online course explores the state's administrative rules for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. As an ACR contractor in Texas, you studied the laws and rules to pass your licensing examination. One aspect of these laws and rules is that you must take a one-hour course each year to stay up to date and maintain your license. ACR Contractors are professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This course satisfies the continuing education requirement of the TDLR for one hour of training on the rules and regulations for contractors as part of the overall continuing education requirement. Contractors should not only include these standards in everyday actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas Air Conditioning and Refrigeration Contractors Occupations Code - Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing the Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas Electrician 4 Hour CE Program #5</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #6</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Texas Electrician 4 Hour CE Program #7</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: 16 Texas Administrative Code, Chapter 75</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: Title 8, Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing Title 8, Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>The Art of Negotiation</b>	From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want.	0.6	Intermediate
<b>The Change Process</b>	In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes. This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours.	2.5	Intermediate
<b>The Hazards of Oxygen and Oxygen Enrichment</b>	This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage.	1	Intermediate
<b>The Importance of the International Building Code (IBC) in the Design and Construction of Safe Buildings</b>	This three-hour webcast gives participants an introduction to the International Building Code (IBC), which is a model building code developed by the International Code Council (ICC). The IBC Codes provide minimum safeguards for people with regard to building safety. Focus will be on the importance of the code in regard to fire prevention, ingress/egress, and structural stability. Discussions will also include additional codes (e.g., International Plumbing Code) that when referenced by the IBC are adopted, as well. This webcast distills the IBC down to relevant code sections, chapters, and working examples that illustrate fundamental code concepts.	3	Fundamental
<b>The Petroleum Industry - Crude Oil Classification and Benchmarks</b>	Fluctuations in the price of oil triggered the debate regarding the level of world oil reserves, and the capacity to meet future energy demand has taken on a new impetus. This has led to reinvestigation of the methods of crude oil classification and classification of reserves. For the purpose of the course, we'll define petroleum as a naturally occurring mixture of hydrocarbons, generally in a liquid state (that may also include compounds of sulfur, nitrogen, oxygen, metals, and other elements) which occurs in sedimentary rock deposits throughout the world. However, the definition of petroleum-associated materials has been varied, unsystematic, diverse, and often archaic. It is only recently that some attempt has been made to define these materials in a meaningful manner. Thus, it is not surprising that attempts to classify petroleum have also evolved. In this course we will review these methods and present them to you for further consideration in terms of pricing strategies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>The Petroleum Industry - Exploration, Recovery, and Transportation</b>	This course will give a non-technical explanation of the technical aspects of oil exploration and recovery; but the information in this course is intended for the technical and non-technical person alike. We'll explore the different operations for exploration and recovery of crude oil and other sources of energy, such as tar sand. We'll also examine the different methods of transportation used to transport varying amounts of oil. This course will also touch upon how the exploration, recovery, and transportation oil affect oil economics, including prices, supply, and demand.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>The Petroleum Industry - History, Terminology, and Culture</b>	When you think of crude oil, the first thing that probably comes to your mind is the black liquid that is pumped out of a reservoir. Or you might be thinking of the liquid you pump into your car, which you notice is a bit more expensive than it was a decade or even a week ago. The definition of crude oil is confusing and variable and has been made even more confusing by the introduction of other terms that add little, if anything to petroleum definitions and terminology. Actually, until the mid-1800s, this vast untapped wealth lay mostly hidden below the surface of the earth. Some oil naturally seeped to the earth's surface and formed shallow pools that were used as a source of medicinal liquids, illuminating oil, and, after evaporation of the volatile components, as a caulking for boats and a building mastic. For centuries, demand was limited but better refining techniques and surging demand for kerosene and lubricants in the late 19th century changed this. Today, crude oil is the major source of fuel used by people today. In this course, we will go back to petroleum's verbal roots, through its initial uses to its role in society today and the major oil companies that distribute it.	2	Fundamental
<b>The Petroleum Industry - Oil Supply</b>	In this course we will cover conventional and non-conventional oil sources, especially the impact of heavy oil and tar sand bitumen. We will also cover past and present technological, economic, and geopolitical factors of oil. These will be viewed in light of the expectation of peak oil, which is the peaking and subsequent decline of the production rate of oil, and the knowledge that oil is a limited resource.	1	Fundamental
<b>The Petroleum Industry - Origins and Occurrence of Oil</b>	In this course we will discuss the formation of oil and review the theories of its origin. You will get comprehensive information about oil reservoirs including their structure, oil accumulation, as well as distribution, migration and transformation of reservoir fluids. We will cover classification and evaluation of reservoirs and estimation of fuel reserves. We will also review fuel reserves focusing on quality, quantity, patterns, and benefits. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>The Petroleum Industry - The Crude Oil Market</b>	Petroleum economics is the field that studies human utilization of petroleum resources and the consequences of that utilization. In the simplest scientific terminology, petroleum use allows the production of energy. In this course we will discuss the factors and pricing strategies that determine oil prices, the transportation of oil from the producer to the consumer, and the structure of the crude oil market and global consumption of oil.	2	Fundamental
<b>The Petroleum Industry - The Future</b>	Crude oil is the major source of fuel used in the modern world, and the crude oil sector is the largest and most dominant economic sector of business in the United States. The United States has come not only to rely on crude oil but the nation is also addicted to crude oil. Cures for this addiction are possible, such as a reduction in the amount of oil required for daily life, but will take time and are unlikely to succeed in the near term. This course discusses the future of the petroleum industry and illustrates how the increasing demand for energy affects both crude oil resources and production of alternative fuels.	1	Fundamental
<b>The Power of One-Taking Accountability to Get Results</b>	Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability.	0.5	Intermediate
<b>The Power of Vision</b>	Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path.	0.5	Intermediate
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental
<b>The Risk of Misclassification of Employees &amp; Essentials of I-9 Compliance (RV-PGM144)</b>	In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	1	Fundamental
<b>The Safe Operation of Utility Carts</b>	Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include: Daily Inspections (tires, fluids, steering, obstacles) Load limits Occupant & Pedestrian safety Speeding, skidding & slick surfaces Turns, center of gravity & blind spots Backing up, ramps and parking Rules for riders	0.15	Fundamental
<b>The Science of Mold</b>	Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants. This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
The Science of Personal Productivity	Exploring the power of the mind to get more done. Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying Yes to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home.	0.75	Fundamental
The Top 5 Marketing Mistakes	What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course). In this course, Rich Harshaw explains why his famous statement, Everything You Know About Marketing Is Wrong is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results.	3	Fundamental
The Ultimate Project Manager, Chapter 01: Today's Project Manager	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
The Ultimate Project Manager, Chapter 02: Marketing And Proposals	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
The Ultimate Project Manager, Chapter 03: The Contract Agreement	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
The Ultimate Project Manager, Chapter 04: The Project Management Plan	The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
The Ultimate Project Manager, Chapter 05: The Project Schedule	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
The Ultimate Project Manager, Chapter 06: The Project Budget	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
The Ultimate Project Manager, Chapter 07: Leading The Project Team	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
The Ultimate Project Manager, Chapter 08: Managing Client Relationships	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
The Ultimate Project Manager, Chapter 09: Developing Effective Communications	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate
The Ultimate Project Manager, Chapter 10: The Project Startup	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
The Ultimate Project Manager, Chapter 14: Managing Project Quality	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
The Ultimate Project Manager, Chapter 15: Managing Project Risks	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
The Ultimate Project Manager, Chapter 16: Project Financial Management	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
The Ultimate Project Manager, Chapter 17: Project Management And Design Technology	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
The Ultimate Project Manager, Chapter 19: Project Closeout	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate
The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>The WELL Building Standard</b>	How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied.	3	Fundamental
<b>Time Management Basics</b>	You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of.	1.5	Fundamental
<b>Tips for Managing Older Team Members</b>	Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not to do, when managing older team members.	0.2	Intermediate
<b>Transformers I - Electrical Characteristics</b>	This 1-hour interactive online course is the first part of a series of courses on electric distribution transformers. In this part we will look at the basic electrical characteristics of transformers including how magnetism is used to create a voltage within the transformer. Characteristics such as how a transformer works, how the primary and secondary voltages and currents are related, how to calculate the transformer's regulation and efficiency, as well as the factors contributing to losses within the transformer are reviewed. Diagrams are presented that show the basic construction of a distribution transformer and the course includes a description of the common designs in use today such as shell-form designs, core-form designs, and the various three-phase designs. The course includes a multiple-choice test at the end.	1	Advanced
<b>Transformers II - Standards</b>	This 2-hour interactive online course is the second in a series of courses on electric distribution transformers. In this course we will review the various methods to classify transformers including cooling methods, protection schemes, and installation types. This course discusses transformer types, including oil filled and dry types, as well as the different types of transformer oils that are used. Both conventional and CSP transformers are reviewed. Standards, such as the insulation standard, short-circuit withstand, voltage rating identification, and terminal markings, are reviewed. Finally, transformer loading issues and methods to evaluate the cost of operating distribution transformers are discussed. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transformers III - Connections</b>	This 2-hour interactive online course is the third in a series of courses on electric distribution transformers. In this course, we review the application of single-phase transformers in both single-phase installations and three-phase installations. Other factors such as the available fault current at the secondary of a transformer are reviewed as well as how ferroresonance impacts the operation of distribution transformers. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transition to Leadership</b>	New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role.	0.6	Intermediate
<b>Transmission and Distribution: Framing Specifications and Basic Construction Diagrams</b>	The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job.	1	Intermediate
<b>Transmission and Distribution: Overhead Distribution Systems</b>	The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed.	1	Intermediate
<b>Transportation Engineering: Highway Capacity</b>	Highway accidents result in thousands of deaths a year. Knowing how highway capacity analysis is used in the design of safe and efficient roadway facilities is essential to the health safety and welfare of the general population. This interactive online course will teach you about the fundamental concepts of highway capacity analysis. You will learn about transportation system elements, types of roadway facilities, design vehicles, the concept of level-of-service, traffic volume parameters, and speed parameters and how they are relevant in analyzing the capacity of roadway facilities.	2	Fundamental
<b>Transportation Engineering: Introduction to Transportation, Planning, and Funding</b>	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Transportation Engineering: Mass Transportation</b>	Mass transportation (or public transportation) is any form or shared-passenger transportation service available for use by the general public. The types (or modes) of mass transportation include airline service, bus (commonly referred to as transit or transit service in the United States), paratransit (van service), light rail (also known as tram), commuter rail, heavy rail, ferries, as well as other modes such as motorized tricycles (often referred to as auto rickshaws) that are common and widely used in mostly developing and emerging economies. New and innovative modes of mass of transportation include Maglev trains. The focus of this interactive online course will be on modes of mass transportation and mass transportation systems common within the United States, in particular transit, paratransit, light rail, commuter rail, and heavy rail.	2	Intermediate
<b>Transporting Hazardous Materials</b>	Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them. In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials.	0.5	Intermediate
<b>Tree Trimming Safety</b>	Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job. Topics covered also include: Saws, axes, and pruning tools Chainsaw use Personal protective equipment Safety belts, climbing spikes, and harnesses Working from ladders, boom trucks or aerial baskets Planning and other considerations that need	0.25	Fundamental
<b>Trenching and Excavation Safety</b>	This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices.	0.5	Intermediate
<b>Trenching and Excavation Soil Properties</b>	This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices.	0.25	Intermediate
<b>Triethylaluminum Safety Awareness</b>	This course will introduce and describe the characteristics of Triethylaluminum (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE.	1	Intermediate
<b>Truck Mounted Cranes</b>	Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes.	0.5	Intermediate
<b>Turnover</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Turpentine Awareness</b>	Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards.	0.25	Intermediate
<b>Turret Truck Safety</b>	A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures.	0.25	Intermediate
<b>Underground Storage Tank Requirements (UST)</b>	Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overflow control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations.	0.5	Intermediate
<b>Understanding Business Ethics</b>	In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company.	2	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Understanding Concrete's Environmental Advantage</b>	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental
<b>Understanding Construction Claims</b>	This 2-hour interactive online course provides a basic overview of the five different types of construction claims that a contractor might have against an owner: Delay, Changed Work, Labor Productivity Loss, Acceleration, and Termination. It defines each type of claim and the subcategories within each, as well as defining the crucial concepts associated with each. It also provides a basic introduction to the various methods for calculating damages related to each type of claim, emphasizing the importance of the project schedule as an evaluation and analysis tool. The course material is supplemented with summaries of actual cases to illustrate how courts and boards rule on the different types of construction claims. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Understanding Fire Sprinkler Drawings and Calculations</b>	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
<b>Understanding Gender and Gender Identity</b>	Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self.	0.2	Intermediate
<b>Understanding HIPAA</b>	In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information.	4	Intermediate
<b>Understanding Moisture Intrusion and Its Impact on Mold Growth</b>	The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	1	Fundamental
<b>Understanding the Energy Independence and Security Act</b>	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - StormWater Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
<b>Understanding Workers' Compensation for Employees (V15)</b>	What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Understanding Workers' Compensation for Employers V14</b>	Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Uninterruptible Power Supply (UPS) System Efficiency</b>	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Universal Waste Storage and Handling</b>	There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes.	0.5	Intermediate
<b>Unstable, Reactive, and Energetic Compounds</b>	Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity.	0.5	Intermediate



## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Urban Drainage – Design of Storm Water Detention and Retention Facilities</b>	This course will cover the information presented in Chapter 8 of the Hydraulic Engineering Circular by examining the procedures for the design of storm water detention and retention facilities in conjunction with highway design. This course provides a comprehensive and practical guide for the design of storm drainage systems associated with transportation facilities. Design guidance is provided for storm drainage systems which collect, convey, and discharge storm water flowing within and along the highway right-of-way. Methods and procedures are given for the hydraulic design of storm drainage systems.	2	Advanced
<b>Urban Sprawl Laws</b>	The social, environmental, and economic state of our communities, as well as the health of our population, is affected by our urban environment. Historically, the central objective of planning laws and land use regulations was to safeguard negative consequences associated with the built environment. Concern about rapidly developing urban regions has prompted state legislatures to pass planning laws to manage urban development. This interactive online course will focus on traditional growth management regulations and development restrictions employed in the local, regional, and state policy-making arenas. This course will also discuss a new approach heralded by California in Senate Bill 375 that focuses on regulating air quality standards through land development patterns. The types and functions of both traditional and new planning reform laws are the focus of this course.	2	Fundamental
<b>Use of Steel in Design &amp; Construction</b>	This 1-hour interactive online course discusses the use of steel in design and construction, with the primary focus of the design segment relating to design of buildings, and not entailing design of the myriad of other things in modern society that are made from steel. We will start with a look at the methods of manufacturing various types of steel. The resultant physical characteristics of different types of steel will be examined to understand those applications where the use of different steel is recommended. Techniques for proper use and erection of steel in buildings will be discussed, in conjunction with design considerations. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Vehicle-Mounted Aerial Device Safety</b>	Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs.	0.75	Intermediate
<b>Violence in the Workplace</b>	Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations.	0.25	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #1</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #2</b>		3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #3</b>	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #4</b>	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Volatile Solvent Spill Response</b>	Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid. Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration.	0.25	Intermediate
<b>Walkable Communities</b>	You can be a leader in the growing trend of communities that support more social interaction, physical fitness, and diminished crime and social problems. You can develop economically and naturally sustainable urban environments that lead to whole, happy, healthy lives for the people who live in them. This webcast gives you the information and tools you'll need to set and reach those goals. You'll learn preferred choices of transportation, street design, and guidelines for developing walkable (non-motorized) communities.	1	Intermediate
<b>Walking and Working Surfaces</b>	Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs.	0.5	Intermediate
<b>Warehouse and Loading Dock Safety</b>	Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures.	0.5	Intermediate
<b>Warning Signs and Labels (BBWSALOCEN)</b>	This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Washington Electrical Contractor 4 hour program #1</b>	This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha	4	Intermediate
<b>Washington Electrical Contractors: 2017 NEC Changes</b>	Part I Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings, clarifying how to size feeders, and new listing rules for service equipment, and others as well. Part III Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820].	4	Fundamental
<b>Washington Electrical Contractors: 2017 NEC Changes General Requirements</b>	Part I Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Part II Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course, we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Part III Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part IV Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	4	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Washington Electrical Contractors: 2017 NEC Changes Grounding &amp; Bonding</b>	Part I Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Part II In this interactive online course, you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. Part III In this interactive online course, we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Part IV Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	4	Fundamental
<b>Washington Electrical Contractors: International Building Code Essentials - Fire and Health Safety</b>	Part I of this interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Part II discusses Health Safety. For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities.	2	Fundamental
<b>Wastewater Treatment and Reclamation: Asset or Liability</b>	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
<b>Water-Based Fire Suppression Systems</b>	With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost \$12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project.	1	Fundamental
<b>Welding Safety</b>	Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards.	0.5	Intermediate
<b>What's New in Excel 2019</b>	Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More! The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike.	0.75	Intermediate
<b>What's New in PowerPoint 2019</b>	Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019! Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone.	1.25	Intermediate
<b>What's New in Word 2019</b>	New Editing and Image Features Improve The Worlds Most Popular Document App. The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike.	1.25	Intermediate
<b>What's New in Adobe CC 2015?</b>	Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color.	1.5	Intermediate
<b>What's New in Office 2016?</b>	Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents. Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016.	1	Intermediate
<b>Wind Design Using ASCE 7-10</b>	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
<b>Windows 10 Essentials</b>	This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
Windows 8.1 Essentials	This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95.	0.5	Fundamental
Winning Proposals 1: Preliminary Steps & Planning Strategies	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Winning Proposals 2: Effective Design & Development	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Winning Proposals 3: Components of a Successful Proposal	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Winning Proposals 4 & 5: Final Considerations & Evaluations	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Wire Rope Basics	Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load.	0.5	Intermediate
Wire Rope Safety and Operation	Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers.	0.25	Intermediate
Wood Design Using the 2012 Wood Frame Construction Manual	Knowing the correct wind speed for the area in which you are building a wood frame structure is crucial to the safety of the building's inhabitants. This interactive online course will describe how to use the 2012 version of the American Wood Council's Wood Frame Construction Manual (WFCM). This version incorporates the use of wind speed maps from ASCE 7-10 and the design of both vertical and lateral load paths using the WFCM. There are many nuances to the correct use of this manual and many of these will be covered to help the practitioner correctly use this document that is referenced in the International Building and Residential Codes.	3	Intermediate
Work Life Balance	Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire.	0.5	Intermediate
Work Practices of the Mold Remediation Contractor	Work practices of the mold remediation contractor are the everyday hands-on methods that ultimately make a project succeed or fail. This course will provide the keys to assessing mold contaminated materials and contents, and assist the remediation professional in the decision making of whether they should be disposed or cleaned, and how to effectively clean them.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Work Zone Driving Hazards</b>	Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone.	0.25	Intermediate
<b>Work Zone Safety</b>	A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a one size fits all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course.	0.5	Intermediate
<b>Worker Right to Know (RTK)</b>	Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet.	0.5	Intermediate
<b>Working Effectively with Building Officials and Inspectors</b>	Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials.	1	Fundamental
<b>Working Over or Near Water</b>	Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices.	0.47	Intermediate
<b>Workplace Hazardous Materials Information System (WHMIS)</b>	The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements.	0.5	Intermediate
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

## Construction & Safety (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental
<b>Writing in Plain Language</b>	Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job.	1.25	Fundamental
<b>WSI - Groundskeeping Safety</b>	After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training.	0.25	Fundamental

## Architecture & Design

Title	Description	Hours	Level
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Site and Building Services</b>	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Special Processes and Building Uses</b>	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Fire Code®: Significant Changes</b>	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes</b>	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Residential Code® Essentials – Code Administration and Site Development</b>	Did you know that the International Residential Code® (IRC) is a comprehensive, stand-alone residential code that establishes minimum regulations for the construction of one- and two-family dwellings and townhouses up to three stories in height, including provisions for fire and life safety, structural design, energy conservation and mechanical, fuel-gas, plumbing and electrical systems? These codes serve primarily to protect the safety and welfare of the building occupants and the public. In addition to providing a better understanding of the code provisions and their development, the additional content of this course is organized to correspond to the order of construction, beginning with sitework. Structural topics include conventional footings and foundations (including the fundamentals of soil capacity). Developed in partnership with the International Code Council®.	1	Fundamental
<b>2015 International Residential Code® Essentials - Health and Safety</b>	The health, safety, and welfare of the dwelling occupants is of primary concern to anyone involved in the design, construction, or inspection of residential buildings. The International Residential Code® (IRC) sets minimum requirements for the most commonly encountered building practices. In this interactive, online course you will explore such topics as a safe means of exiting the building and protection from falls and from the hazards associated with breaking glass. The code also sets minimum room dimensions to support a healthy living environment. Other requirements in the code address fire safety and air supply and support concerns for chimneys and fireplaces. Developed in partnership with the International Code Council®.	1	Fundamental
<b>2015 International Residential Code® Essentials - Protection, Utilities, Conservation, and Hazards</b>	Protecting the public is an important part of your job. As part of its purpose statement to protect the health and general welfare of the public, the International Residential Code® (IRC) sets minimum requirements for durable interior and exterior finishes, as well as for providing weather protection. Permanently installed equipment and systems that control environmental conditions of a dwelling are significant in what you plan for and do. Part of this course will focus on common heating, ventilating, and air conditioning (HVAC) systems, gas-fired appliances and gas piping systems. The IRC also covers plumbing system design and installations typical of dwelling construction, as well as focusing on commonly encountered electrical installations for services, branch circuits, devices and fixtures in IRC-regulated buildings. Also addressed in this interactive, online course are the prescriptive methods of the IRC for effective use and conservation of energy through proper design and construction of dwellings and information on structural and environmental hazards often associated with dwelling and accessory building construction. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Residential Code® Essentials - Structural</b>	When following conventional construction of residential buildings, protecting the safety and welfare of the building occupants and the public is a primary concern. But as a professional, you don't want to feel backed into a corner by standards. The 2015 International Residential Code® provides comprehensive, easy to use standards that afford the greatest design flexibility in recognizing other methods and materials of construction. This interactive, online course explains the difference between prescriptive and performance requirements. Prescriptive structural design requirements to resist the forces of wind, earthquake and snow are described and illustrated in an easy-to-understand way. Structural topics include conventional wood floor, wall and roof framing, and engineered wood products. Developed in partnership with the International Code Council®.	1	Fundamental
<b>2017 NEC Changes: Special Equipment</b>	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)</b>	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)</b>	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced
<b>A Hydrology Primer for Engineers and Design Professionals</b>	Many design professionals were introduced to hydrology concepts when they started their careers. But the science and terminology of hydrology continues to evolve. Engineers and other design professionals need to understand hydrology concepts in order to design appropriately. This online interactive course gives you the hydrologic cycle, types of natural storage and infiltration, recharge and base flow, surface runoff, peak rates of flow, I-D-F curves, hyetographs and hydrographs, runoff volume, NRCS hydrologic soil groups, and concentration, as well as a lengthy discussion on the differences between the Rational Method and the federal peak flow methods (using TR-20 and 55).	2	Intermediate
<b>A Wetland Primer for Design Professionals</b>	An understanding of wetlands is increasingly important for design professionals, including architects, engineers, land surveyors and landscape architects. This 1-hour online course will acquaint you with the changed perception of wetlands in North America, contemporary definitions of wetlands and types of wetlands found on this continent. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>A Wetland Primer, Advanced: Field Evaluation &amp; Permitting Considerations</b>	This 2-hour interactive online course is a follow-up to 'A Wetland Primer For Design Professionals' by the same author. Although a basic understanding of wetlands--crucial for architects, engineers, land surveyors and landscape architects--is mastered in that first course, design professionals often need a broader understanding of why wetlands play an increasingly important role in site considerations, and how they are identified. This course does exactly that, in a easily understood series of steps. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Accessibility and Visitability</b>	Visitability is the concept of newly constructed houses being built to allow for someone with mobility disabilities to visit the house, move around inside the house, and use the restroom. The movement was founded by Eleanor Smith. The house will likely be around for a long time, and these concepts help not only people who visit, but also people who live there and may want to age in place. This interactive online course will introduce you to the principles of Visitability as well as the benefits of designing to these principles.	1	Fundamental
<b>Accessibility by Building Type: Multi-Use Facilities</b>	This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Accessibility by Building Type: Universal Residential Design</b>	Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday lifestyle challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Accessible Design: Curb Ramps, Ramps, and Elevators</b>	Curb ramps, ramps, and elevators make the world an easier, more accessible place for not only people with disabilities, but everyone as a whole. Though they may be a small thing, curb ramps are one of the easiest things to use to demonstrate that accessible features benefit everyone, not just people with disabilities. A curb ramp may enable someone in a wheelchair to cross a street, but it will also help an older person who walks with a cane, or a parent with a young child in a stroller, or a perfectly healthy, able-bodied, young person with a cart or dolly stacked with groceries or boxes. Ramps and elevators provide the same level of easy access for greater changes in elevation. This interactive online course illustrates how you can include these designs into your built environment to create accessible spaces for everyone.	1	Fundamental
<b>Accessible Parking</b>	In order to have an accessible site where parking is provided, people must be able to get to the site first. This means accessible parking is a necessity. This is a common part of the accessibility codes that most design professionals and building inspectors will have to deal with in their everyday work. Parking is easy to make accessible, but also easy to get wrong. This interactive, online course will point out why this should be a top priority and how to avoid the pitfalls. Components of accessible parking, location, and how many spaces are required will also be discussed.	1	Fundamental
<b>Accessible Restrooms</b>	Everyone needs to use the restroom. To find a restroom inaccessible due to physical barriers is an indignity that can and should be avoided. This interactive, online course will cover the most common errors that could cause inaccessibility, and how to design an accessible restroom for everyone. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>Accessible Signage</b>	Accessible signage is one of the most commonly missed areas of accessibility because it is not well understood. Accessible signage is important to blind and low vision individuals to help them locate and identify rooms and spaces. This interactive online course aims to improve your knowledge and awareness of accessible signage issues.	1	Fundamental
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: <ul style="list-style-type: none"> <li>Ground and floor surfaces (302)</li> <li>Changes in level (303)</li> <li>Wheelchair turning space (304)</li> <li>Clear floor space (305)</li> <li>Knee and toe clearances (306)</li> <li>Protruding objects (307)</li> <li>Reach ranges (308)</li> <li>Operable parts (309)</li> </ul>	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: <ul style="list-style-type: none"> <li>What is effective communication?</li> <li>What are auxiliary aids and services</li> <li>When is a state or local government required to provide auxiliary aids and services</li> <li>Who chooses the auxiliary aid or service that will be provided?</li> </ul> This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: <ul style="list-style-type: none"> <li>701 General</li> <li>702 Fire Alarm Systems</li> <li>703 Signs</li> <li>704 Telephones</li> <li>705 Detectable Warnings</li> <li>706 Assistive Listening Systems</li> <li>707 Automatic Teller Machines and Fare Machines</li> <li>708 Two-Way Communication Systems</li> </ul> ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501) Parking Spaces (502) Passenger Loading Zones (503) Stairways (504) Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>ADA Guidelines 2010: Recreational Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including: 1001 General 1002 Amusement rides 1003 Boating facilities 1004 Fishing piers and platforms 1005 Miniature golf courses 1006 Golf courses 1007 Exercise equipment 1008 Bowling lanes 1009 Shooting facilities 1010 Swimming pools, wading pools, and spas ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>ADA Guidelines 2010: Small Towns</b>	People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Achievable Barrier Removal and Accessibility (B)</b>	The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.	1	Intermediate
<b>ADA Guidelines: Designing Pedestrian Facilities using Public Right of Way Accessibility Guidelines (PROWAG)</b>	The United States Access Board is the entity responsible for maintaining the American with Disabilities Act (ADA) guidelines. While the ADA guidelines address certain features common to public sidewalks, such as curb ramps, further guidance is necessary to address conditions and constraints unique to public rights-of-way. The Access Board has been developing Public Right of Way Accessibility Guidelines (PROWAG) for the past few years. Once PROWAGs are adopted by the Department of Justice, they will become enforceable under Title II of the ADA. This course will provide a summary of the most recent PROWAGs that have been published by the Access Board and how they relate to the design of pedestrian facilities within public right of ways.	1	Fundamental
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>Air Quality: U.S. Air Trends</b>	The government is using our tax dollars to require improved air quality and to report on the progress of those improvement efforts. Those reports are available to us. You can be knowledgeable about the status of our air quality currently, how it compares to the past, and the effect of climate change. This interactive course gives you the report done by the U.S. Environmental Protection Agency. You get charts, details about pollutants, and supportive activities to help you understand and retain the report information.	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Anatomy of Construction Defects</b>	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate
<b>Architect and Engineer Design Coordination</b>	As with all things that require several members to work together, coordination-or lack thereof-can have a tremendous impact on the outcome. When many skillful individuals work together it is very useful to follow a methodological approach when coordination and communicating with each other. This 1-hour interactive online course will analyze project scopes, scheduling, quality control, and the permitting process, all items that will need to be coordinated before and during the design of the project. You will be armed with all the knowledge and skills you need to coordinate and communicate effectively throughout your organization. Use this course to enable a successful project, all the way from the pre-proposal to final construction.	1	Fundamental
<b>Architectural Concrete</b>	The good news about creating formidable, memorable, or simply interesting buildings is that architectural designers can choose from an almost limitless array of patterns, finishes, textures, color oxides, aggregate colors, and cements to fulfill their vision and their purpose. Once the desired combination is achieved, however, responsibility for obtaining the correct architectural product is shared by the contractor and the contracting officer, who must follow stringent guidelines. This interactive online course provides guidance for the design and construction of architectural concrete, including planning and design, forms, materials and proportions, batching and transporting, placement, curing and form removal, exposed aggregate surfaces, finishing, and quality assurance.	4	Intermediate
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
<b>ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>AutoCAD 2014: Part 1 - Introduction</b>	AutoCAD® is the world's leading software for producing technical drawings or computer aided design and drafting. AutoCAD® has become the global industry standard for technical and engineering drawings. This course presents a hands on introduction to the AutoCAD® 2014 program and is the first in a series of courses on the 2014 release. You will be introduced to the AutoCAD® 2014 program and take a look at it's basic features. You will also get an introduction to drawing basic shapes and lines. This course includes a practical application where you will get to complete real world examples using the AutoCAD® program.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>AutoCAD 2014: Part 2 - Editing Techniques</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands-on introduction to the AutoCAD® 2014 program and is the second in a series of courses on the 2014 release. In this course, you will be exploring the AutoCAD® 2014 program in more detail and looking at layers, object properties, modifying objects, and adding text annotation to drawings. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 3 - Editing &amp; Construction</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® 2014 program and is the third in a series of courses on the 2014 release. In this course, we shall cover construction lines, auto mode, hatching, dimensioning, and setting up dimension styles. We will have a practical application where we apply all of the above to a real-life situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® 2014 software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 4 - Drawing Aids and Utilities</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands on introduction to the AutoCAD® 2014 program and is the fourth in a series of courses on the 2014 release. In this course, we will look at how to create and work with groups, blocks, annotation, and utilities. We'll look at how to set up and use the coordinate systems. And then, we shall have a practical application where we apply the above to a real life problem. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 5 -Template, Layouts, and Viewports</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the fifth in a series of courses on the 2014 release. In Part 5 of our lecture series on AutoCAD® 2014 we shall cover layouts, layout templates, viewports, plotting, exporting, and at the end we shall have a practicum. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 6 - Advanced Editing &amp; Annotation</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the sixth in a series of courses on the 2014 release. In Part 6 of our series on AutoCAD® 2014, we shall cover arrays, annotation scaling, external references, and then we'll have a practical problem where we'll apply these to a real-life engineering situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>Bamboo Flooring and Beyond</b>	Have you heard about bamboo? It is used for food, clothing, and to build bridges. With its inherent sustainability, it's becoming especially popular as a flooring option. Do you know why? Here's your opportunity to learn about and speak knowledgeably about bamboo. This webcast takes you from how bamboo grows and gets harvested to valuable information about its characteristics, how it compares to wood, and why its such an excellent choice for flooring. You'll get basics, processes, and the many choices that are available whether you are looking for green options or simply an attractive flooring material. This course will meet your needs.	1	Intermediate
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Better Roadway Design - Curbs &amp; Pedestrian Control Devices</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of edge treatment/delineation of curbs, curb radii, and pedestrian control devices at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Better Roadway Design - Intersection Signalization</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subject of signalization for turning movements at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Better Roadway Design - Intersection Signing</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour online course covers the subjects of signing at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Better Roadway Design - Intersections</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of reaction times and driver performance that may not be realistic. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour interactive online course covers the subjects of intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Better Roadway Design - Lane Assignment, Signals &amp; Lighting</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of devices for lane assignment on intersection approach, traffic signal performance issues and fixed lighting installations at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Biofilters: A Natural Approach to Storm Water Pollutant Removal</b>	Bioswales and constructed wetlands are under increasing use to address pollutants in storm water runoff. However, many installations of these BMPs have failed or have not been as successful as hoped. This interactive online course provides a discussion of the concepts of biofilters. Most of the failures can be attributed to insufficient information being available or to bad or no expert input into the design, construction, vegetating, or maintenance of the bioswale or constructed wetland. This course is intended to provide information on the design and use of biofilters so that designers will be able to make better decisions on the design, construction, implementation, and maintenance of these Best Management Practices.	2	Intermediate
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Building a Sustainable Future</b>	Over 7 billion people now inhabit the earth, placing unprecedented pressure on the planet's soils, waters, forests, and other natural capital. The majority of the global population lives in urban areas, where their interactions with nature, and the benefits that these interactions provide, commonly occur in small-scale sites and residential settings. Most often, these landscapes are treated as inconsequential, and their full potential to mend humanity's environmental offenses and improve our quality of life is commonly overlooked. This course illustrates the importance of creating regenerative and resilient systems that increase the provision of ecosystem services. Site sustainability is defined, and the value of education about sustainability and stewardship toward our built and natural ecosystems is discussed. The importance of instilling a love of nature in our children is examined, in addition to the monitoring and adaptive management of ecosystems so maintenance practices can be continually adjusted to improve the overall function of the site. The purpose of this course is to elevate the discussion of sustainability beyond doing less bad—attempting to merely slow down environmental degradation—to create regenerative sites that restore ecosystem function and rebuild the earth's natural capital. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Building Codes, Sustainability, and Structural Systems</b>	Because the health of the aging can be precarious and their safety is paramount, senior housing and care facilities are very carefully regulated. Federal and state governments subject some new projects to codes that govern program areas and the construction of all the major building systems. In addition, most states have detailed regulations written specifically to govern certain senior housing and care building types, including nursing homes, adult day care, outpatient diagnostic and treatment facilities, and some forms of assisted living. These regulations cover everything from space and environmental standards to resident rights and staffing requirements. This course covers building codes, structural systems, and sustainable building design for senior housing and care facilities. Federal, state, and local codes and regulations will be discussed, including safety and accessibility requirements. Selection of appropriate structural system or combination of systems, and the incorporation sustainable design principles into the senior housing and care facilities will also be covered in this course. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Building for Senior Living: Interior Design Elements and Considerations</b>	This course is divided into four major sections - Acoustics, Lighting Design, Interior Design, and Renovation, Restoration, and Reuse. Acoustics, of course, deals with sound. We will cover the many acoustical considerations to keep in mind when designing for everything from the public areas to the very private ones. In the Lighting Design section we'll cover the basics of light levels, lamping options, and daylighting. We'll also review guidelines for specialized spaces, as well as resident rooms in long-term care and assisted living facilities. The Interior Design chapter will discuss the design process, various trends, and guidelines for color, materials, and wayfinding concepts. For Renovation, Restoration, and Reuse, we'll explore options for rehabilitation, deconstruction, and new construction for the various types of facilities. We'll provide comprehensive guidelines, many images of examples, and tables of additional information. You'll get opportunities to apply what we're covering, and printable resources to reference in the future. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Mechanical, Plumbing, Fire-Protection, Electrical, Communications, and Low-Voltage</b>	When designing buildings and spaces for an aging population, special requirements for building systems must be taken into consideration. Building systems account for significant parts of both the construction and operating costs of senior housing and care facilities. This course will cover multiple building systems, including mechanical, plumbing, fire-protection, power distribution, communications systems, and low-voltage electrical systems, and discuss special requirements for these systems in senior housing and care facilities. The use of spaces within the building and the needs of its occupants should be carefully analyzed, and design should be focused on the typical comfort, convenience, and safety needs of older adults. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 1</b>	This is the first of two courses on programming and planning guidelines for senior living facilities. The senior living industry has expanded and diversified to address demographic change. This course provides an overview of the major issues involved in the planning, design, and development of specialized environments for this new group of aging Americans. Specifically, these two courses describe the issues associated with each of the 10 major building types within the general framework of design for aging. In Part 1, you will be introduced to all 10 building types, and we will take a detailed look at the first four, including Community Based Options, Geriatric Outpatient Clinics, Adult Day Care, and Long-Term Care. The remaining six building types will be looked at in Part 2. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 2</b>	Welcome to the second part of Building for Senior Living: Programming and Planning Guidelines for Facilities. In this course we will continue our discussion on the remaining six building types for these facilities. We will take a detailed look at the guidelines for Hospice, Assisted-Living Residence, Dementia/ Alzheimer's Care, Independent/ Residential Living Apartments, Continuing-Care Retirement Community, and Active Adult Community facilities. These guidelines are only a starting point for the project planning or programming effort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: The Future of Senior Living</b>	Since the 1980s, the senior living industry's response to a variety of trends and challenges has yielded new models for housing and care. This course summarizes some of the catalysts for that change, as well as those that will accelerate the rate at which the industry continues to evolve. At the end of this course, there is an extended discussion regarding the biggest challenge for the senior living industry: affordability. This course will discuss the following six issues that have been particularly challenging in recent years: 1. Demographics 2. Consumer expectations 3. Lifestyle changes 4. Service partnerships 5. New housing and care concepts 6. Affordable options Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Building Systems for Designers - Advanced Acoustic Design Principles</b>	Achieving good acoustics has become increasingly difficult for a variety of reasons. Some of those reasons are budgets with low construction budgets, weight of various materials, and an increase in open areas and a higher density of employees in the office. Interior designers can have a profound effect on the acoustical quality of an interior environment. In this course we will look at Sound absorption and Sound Transmission Between Spaces, examine all types of environments from offices, schools, and performance centers. We will examine how sound in one space can be reduced within that space as well as what determines how much sound that travels to an adjoining space will be heard. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Advanced
<b>Building Systems for Designers - Electrical Appliances and Communications Equipment</b>	As we all know from talking with parents and grandparents and from watching old movies and TV shows, technology at home and in the office has changed considerably. Many of the items we consider necessities in our modern world would seem like magic to our ancestors. This course will give you the evolution of our most commonly used appliances as well as current information to use in designing for today's homes and offices. We'll focus on kitchen appliances, laundry equipment, and data and communications wiring. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Electrical Systems Basics</b>	Our reliance on electricity has serious implications for environmental quality and resource conservation. Lighting consumes 25 to 30 percent of the energy used in commercial buildings. This adds heat to a building's interior and increases energy use for air conditioning. In this course we will review basic principles of system design and the various sources of power. We'll also explore the design process, system components, and end-point devices. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Building Systems for Designers - Fire Safety</b>	Most deaths caused by building fires occur in homes, yet the National Fire Protection Association reports that only about 23 percent of households have actually developed and practiced a home fire escape plan to ensure they could escape quickly and safely. When fires occur in high-rise buildings, great numbers of persons are required to travel vertically down stairs in order to evacuate so it is especially important to have a plan for evacuation. This course covers how building interiors are designed to prevent fires and help people escape. This is, perhaps, the most valuable information that interior designers should know about building systems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will effect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counteract these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Introduction to Acoustic Design Principles</b>	Interior designers' experience the world in a strongly visual way, they are often deeply affected by messages received by their other senses as well. Perhaps the most critical of these is the sense of hearing. Sound in a well-designed space reinforces the function of the space and supports the occupants' experience. A poorly designed acoustic environment hinders both the function and the enjoyment of the space, and it can even damage the health of the user. In this course we will take a look at the effect that sound can have on the environment. In this course, we will explore the world of sound and the effect it has on building materials and the people occupying the space. We will look at the designer's roles and how to deal with Interior Acoustics Design Issues. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Lighting Systems</b>	All interior design projects start with an investigation of existing conditions. The location of an interior project within an existing or newly designed building, whether at the perimeter or at its center, affects light, view, and energy demands. Interior design schools routinely offer full-semester courses on lighting design. It is not the purpose of this course to try to cover all of the facets of lighting design to the degree that a lighting course would. Instead, we will look at how the current approach to lighting developed as well as how current lighting design practices affect relationships between architects, engineers, lighting designers, and interior designers. We will also look at controls and will consider practical fixture requirements and lighting system maintenance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Principles of Thermal Comfort</b>	In Regenerative Design for Sustainable Development, John Tillman Lyle writes, To control the flow of energy within a building, the materials and the details of their assembly must augment the form. Five elements of a building are particularly important for their roles in the thermal regime... This course explores those five elements and how they determine thermal comfort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Structural Systems</b>	Although your work as an interior designer is concerned with interior spaces, you will benefit from an understanding of the way buildings are constructed. Why they stand up or fall down, and how different building techniques affect the shaping and utilization of interior space, should be areas of interest to you. In this course we will cover three major areas: Basic Structural Principles and Elements, Structural Forms, and Horizontal Structures and Vertical Movement. We cover everything from superstructure and foundation to windows and walls to horizontal and vertical conveyance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Toilet and Bath Design</b>	In this course, we will touch upon the history of plumbing specifically related to bathrooms, which will lead to the various regulations and standards that must be met in the design and placement of toilets, urinals, bathtubs, sinks, and drinking fountains. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Water Supply, Distribution, and Waste Systems</b>	In this course, we will learn how water gets from its original source to our homes and offices and how it is disposed. We will also cover the various components that make it possible. Additionally, we will learn about efforts currently being made to be more water efficient. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers: The Building and Its Environment</b>	Although interior designers are primarily concerned with the conditions inside buildings, they benefit from observing a building's site, climate, and geography. Interior spaces are increasingly blended with their natural settings. Wise energy use dictates awareness of how sun, wind, and cold affect the building's interior. Interior designers today are working as part of environmentally aware design teams that blend knowledge of interior design principles with an understanding of a building's natural surroundings. This interactive online course examines the connection between a building's interior and exterior environment and the influence of external weather and site conditions on a building envelope. Sustainable design strategies will be discussed, as well as building codes and regulations. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Campus Planning - An Introduction</b>	In this interactive online course you will focus on the important role campus planning takes in forming a distinctive sense of place. You'll be exposed to the fundamentals of campus planning and the importance of planning to the social, cultural, and educational aspects of a higher learning institution. You'll learn to plan successful campuses that: Engage in long-range planning efforts>Create spaces of consistent architectural distinction>Foster an environment for intellectual and social interaction	1	Fundamental
<b>Carbon Tracking/Reduction Strategies for Facility Design and Operations</b>	Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like net zero energy are gaining mainstream traction and help account for the design/reuse of facilities' energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three Scopes, and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority.	2	Intermediate
<b>Coastal Engineering: Hurricanes and Nor'easters</b>	What is the difference between a hurricane and a nor'easter? What kind of damage can they cause to your building project? Hurricanes and nor'easters can be destructive natural events creating high winds, storm surge, large waves, and causing large amounts of erosion, jeopardizing structures built along the nation's coastlines. This interactive online course will provide information about how to build to better resist the effects of these storms, what foundation types perform better, and why these storms are so damaging to the built environment. A few case studies will be included to illustrate techniques that are known to improve building performance.	2	Intermediate
<b>Coastal Engineering: Sea Level Rise</b>	What are some causes of sea-level rise? Is it impacting all coastlines? Sea-level rise is a very real flood condition that has caught the attention of many coastal communities around the U.S. This interactive online course will provide information about the potential magnitude of this rising water, the planning required to better resist the effects of this rising water, and why sea level rise can be so damaging to the built environment. A few case studies will be included to illustrate what is being done around the country to combat this serious climate change issue.	2	Intermediate
<b>Coastal Engineering: Tsunamis</b>	What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Commercial &amp; Residential Mixed Use Development and Sustainability</b>	This interactive webcast focuses on the sustainable nature of mixed-use development. Flexible building use gathers multiple functions into a single structure to redefine sustainable growth in the 21st century. Originally, energy was the main focus in creating buildings that were in harmony with the environment. Although focus on energy and resource conservation remains, the focus has expanded to include the concept of flexibility and density. This course also focuses on the various environmental, economic, and social benefits of providing combined commercial and residential space including; water use reduction, energy conservation, infrastructure cost, infill development, and land preservation. In addition, this course also looks at new sustainability initiatives that look outside the building envelope for sustainable opportunities (e.g., LEED Neighborhood Development, Sustainable Sites Initiative).	2	Fundamental
<b>Commercial Building MEP Design</b>	This 1-hour interactive online course details the steps that can be taken to begin the Mechanical, Electrical and Plumbing (MEP) design of a typical commercial building. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate
<b>Complete Streets - An Introduction to the Complete Streets Concept</b>	This course presents an introduction to the fundamental principles of Complete Streets. The planning and development of Complete Streets projects is presented. You will also learn about the elements of planning for Complete Streets and designing and implementing Complete Streets programs.	2	Fundamental
<b>Complete Streets - An Introduction to the Design of Complete Streets</b>	Complete streets are roads and streets designed and operated to provide safe access for all users, including motorists, bicyclists, pedestrians, and transit riders. Complete streets enable users of all ages, and all physical abilities to safely move along and cross an urban street. This course presents in detail elements of design for complete streets such as intersection design guidelines, modern roundabouts, pedestrian treatments, and bicycle lane guidelines. Each element will be described in terms of the general principles, design considerations, and recommended practice. A variety of case studies will be presented.	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Conflicting and Non-Existent Accessibility Standards</b>	What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility.	1	Fundamental
<b>Constructed Wetlands - Free Water Surface Wetlands</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a free water surface constructed wetland. This 3-hour online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a free water surface wetland, and includes several design examples. Construction issues unique to constructed wetlands are also discussed. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Constructed Wetlands - Introduction &amp; Basic Concepts</b>	Constructed wetlands can be used as artificial wastewater treatment systems. This 2-hour interactive online course provides an introduction into constructed wetlands, their history, common misconceptions and some guidance on when to use constructed wetlands. Also, the basics of constructed wetlands, including ecology, botany, and fauna of constructed wetlands will be discussed. This course includes sections on ecological concerns, human health concerns, on-site applications, and an extensive list of frequently asked questions. This course is based on guidance documents published by the Environmental Protection Agency and provide general information for non-technical individuals such as decision makers and stakeholders, along with design engineers. This course includes a multiple-choice test at the end of each section. This course includes downloadable pdf files. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Constructed Wetlands - Pollutant Removal Mechanisms</b>	Constructed wetlands can be used as an artificial wastewater treatment system. This 2-hour interactive online course covers the details of how suspended solids, organic matter, nitrogen, phosphorus, pathogens and other contaminants are separated and transformed in constructed wetlands. These processes are generally different between constructed wetlands and standard wastewater treatment systems. This course also includes a discussion on modeling performance of constructed wetlands and guidance on models that should be used. Additional RedVector.com courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. There is a test and the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Constructed Wetlands - Vegetated Submerged Beds</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a Vegetated Submerged Bed constructed wetland. This 2-hour interactive online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a Vegetated Submerged Bed wetland, and includes a design example. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Contract Guide for Design Professionals - Basic Principles</b>	This course is written primarily for the design professional - architects, engineers, and other persons that provide professional opinions and services for construction projects. The discussion of contract clauses in this course is intended to provide general information and education for use on traditional design-bid-build projects and does not necessarily apply to the design-build method of contracting. This is because the expectations of the parties on design-build projects are generally different than those on design-bid-build projects. Also, the terms and conditions of contractual agreements on those projects will reflect those different expectations—resulting in a different allocation of risk between the parties. Nevertheless, for a few of the key terms and conditions, a brief discussion of risk allocation and risk management on design-build projects is included in this course. In a similar manner, although this course is focused on traditional commercial projects, brief discussions of clauses and risk management issues germane to Environmental Remediation contracts are included. This course outlines a number of the contract clauses most often identified by construction lawyers and professional liability insurance carriers as requiring particular attention with regard to risk allocation.	3	Fundamental
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Crime Prevention Through Environmental Design: Surveys &amp; Floor Plan Reviews</b>	This course will introduce Crime Prevention Through Environmental Design (CPTED), as it pertains to professionals assisting their clients to design or obtain safer built environments. Students will understand the CPTED strategies so that they can incorporate them based on clients' needs or better understand the strategies when dealing with security planners or consultants. Displayed examples will include physical security surveys and architectural plan reviews so that after-market security countermeasures can be reduced or eliminated. CPTED can also assist professionals with bidding processes. This course will explore residential, commercial, and venue CPTED concerns through multiple examples of floor plan reviews and physical security survey checklists.	2	Fundamental
<b>Data Centers: Connectivity Requirements and Architectural Layouts</b>	Once a site for a data center has been identified and acquired, the multi-year process of design, construction, testing & commissioning, and equipment installation begins. Data Centers are resource hogs - but above all, they require tremendous amounts of power and data communication to operate effectively and efficiently. Appropriate network (power & communication) designs are essential; robust and redundant facilities are mandatory to a 24x7x365 uptime environment. Housing this equipment through appropriate site (Civil) and superstructure (Structural) design and construction efforts is the first layer of defense against network or equipment failure. So, what does it take to make a data center run reliable? In this course, we will review the connectivity demands and requirements for fiber and power, as well as some of the best practices for architectural and structural layouts in modern data centers.	1	Intermediate
<b>Data Centers: MEP, Fire Protection, and Equipment Rooms</b>	Connectivity. The internet of things. Uptime. Reliability. What are these things? These are all terms and concepts that relate to the always connected, always on world that has evolved out of the digital age. The cornerstone of these concepts is the modern data center - massive, hulking, and also secretive buildings that house the hardware, firmware, and software that power our everyday lives. Email, phone calls, Facebook, Google - these are all services provided by the computers housed in data centers. They are located all over the country and the world. They are in high rise buildings in dense urban areas, and they are located in remote rural campuses. They are small, occupying a few thousand square feet in old, Tier I locations, or they can be massive, hundreds of thousands of square feet with 50MW of electrical power. These technological marvels require significant infrastructure to maintain the always-on, always-available status that we demand of services in the modern world. That level of reliability is not achieved through chance. Significant effort and expense is required to facilitate conditions that are conducive to 24x7 reliability. Not the least of which are Mechanical, Electrical, Fire Protection, and Security Systems for these centers. In this course, we will dive into the complexities of these systems. By the end of this course, you will be familiar with the unique language and terms used to discuss the various elements of these systems - like PDU, UPS, EUI, and PUE (and, no, since this is not a one-man interpretation of Robin Williams' efforts in Good Morning, Vietnam! you can rest assured that I didn't make up any of those terms). You will also be able to understand the challenging design strategies that drive the installation and maintenance of these complex and integrated systems, and you will also have a much more in-depth understanding of the costs that drive data center design, construction, and maintenance efforts. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	2	Intermediate
<b>Data Centers: Operations &amp; Maintenance, Upgrades, and Expansions</b>	If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turn-over, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.	1	Intermediate
<b>Data Centers: Planning, Siting, and Selecting</b>	Data centers are the brain and nerve centers of today's high tech environment. Email, webpages, phone calls, banking records, online purchasing, and facilities controls are just a few of the myriad items that require efficient, accurate, and secure electronic transmission and storage. The crux of this entire system is the modern data center - millions of square feet of high power and cooling design systems that process quadrillions of signals. Data Centers can cost in excess of \$1B to design and construct - and most systems rely on multiple data center locations. Properly siting and planning the data center, or data center network, is the first step in a multi-step process.	2	Intermediate
<b>Data Centers: Trends, Technologies, and Efficiencies</b>	Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.	1	Intermediate
<b>Deconstruction and Reuse: Sustainable Construction in Reverse</b>	This interactive webcast focuses on the differences between conventional demolition and deconstruction. We will also focus on the environmental and economic rewards from taking a building apart - either wholly or partially - with the intent of salvaging (recycling or reusing) building materials. This approach varies greatly from conventional demolition which involves material removal and disposal. This course will focus on the types of building materials and their potential for reuse. Some materials have a long tradition of reuse (e.g., bricks, metal), whereas other materials are now finding a new vocation (e.g., plumbing fixtures, doors). We will also explore case study examples of both evolving deconstruction techniques and the types of materials salvaged.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
Design of Bicycle Facilities - Buffered Bike Lanes	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle transportation networks. One of the key elements being used to improve bicycle transportation networks is the construction of buffered bike lanes. In this interactive online course, key planning and design considerations for buffered bike lanes will be reviewed. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of buffered bike lanes and that support their implementation, such as traffic separator options, mid-block crossings and intersection accommodations.	2	Advanced
Design of Bicycle Facilities - Cycle Track Design	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing main bicycle thoroughfare facilities, such as cycle tracks, as key elements of their transportation network. Cycle tracks can be considered as bicycle arterials or bicycle highways; this interactive online course will outline the planning and design elements needed to develop cycle tracks that support this main thoroughfare purpose. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of cycle tracks and that support their implementation, such as ADA accommodations, vehicular traffic level considerations, and the design of geometric elements to accommodate on-street parking, transit facilities and left-turn movements from the cycle track.	2	Advanced
Design of Bicycle Facilities - Multi-Use Paths	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation and a 30% increase in pedestrians. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle and pedestrian transportation networks. One of the key elements being used is that of multi-use paths. Engineers, Architects, Contractors and other professionals from the A/E industry will gain core knowledge under this course for the planning and design of multi-use paths. This interactive online course will cover key guidelines from AASHTO, FHWA and NACTO in the development of multi-use paths, with a special emphasis in ADA elements, geometric requirements such as horizontal and vertical curvature design, and the adequate development of multi-use path crossings and roadway mid-block crossings.	2	Advanced
Design of Buildings for Coastal Flooding	This course provides information important to the design of foundations used in coastal areas. The design methodology comes from FEMA's Coastal Construction Manual (CCM) and has been developed from studying failures after numerous coastal storms. Flood loads are developed using both ASCE 7 and the CCM and applied to pile supported structures. Other flood effects such as erosion and scour are covered. Pile design is discussed as well as bracing methods used in pile systems. An example of how to calculate flood loads and how to apply them to the foundation at a coastal location is included to help provide context on the method and magnitude of the loads.	2	Advanced
Design of Reinforced Concrete Using the ACI Code: Analysis and Design of T Beams and Doubly Reinforced Beams	In this course you will learn ways to analyze T beams and utilize doubly reinforced beams. This course will demonstrate how to size and find required quantity of steel based on the consideration of strength and serviceability requirements. This course shows how to utilize doubly reinforced beams to account for bending moments. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Bond, Development Lengths, and Splices	In this course we will cover how to properly bond beams for a variety of purposes by calculating the development lengths for the reinforcement bars, which will help to provide extra strength to the beams. Factors affecting your developmental length calculation will also be covered, such as critical sections of a beam. We will also cover how splices can help or hinder your project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Rectangular Beams and One-Way Slabs	In this course you will receive comprehensive information on rectangular beams and one-way slabs. We will give you load factors, considerations necessary for beam design, limitations of lateral bracing and deep beams, and examples of beam design. We'll also cover bundled bars, one-way slabs, and reinforcement of cantilever and continuous beams. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Short Columns Subject to Axial Load and Bending	The purpose of this course is to cover some of the aspects of a column that will influence your selection, design, and/or analysis of a column(s) to be used in the support of a structure. This course will cover such topics as: Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Flexural Analysis of Beams	In this course you will learn the three progressive stages that occur before a beam collapses and how to calculate the stress of concrete beams at the different stages. In this course, we will cover formulas you can use to calculate a beam's stress, both in concrete and steel, and when those formulas should be used. We will be utilizing examples to enhance your understanding of each formula's use and what is occurring at each stage. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Introduction	This course will introduce you to concrete and reinforced concrete. You will get definitions, advantages and disadvantages, and descriptions of the different types of concrete. We'll examine all the aspects of concrete - its composition, compatibility with steel, weights and strengths, and load types. You will learn to analyze your concrete needs and to identify the solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Design of Reinforced Concrete Using the ACI Code: Introduction to Columns</b>	You need to be familiar with many types of columns in order to design the safest, most economical building that makes the best use of interior space. This course gives you the types of columns, information on column failure, and the limitations of the ACI Code. You also get a discussion of economical column design and formulas you can use to design for axially loaded columns.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Serviceability</b>	Serviceability addresses the issue of performance. In this course you will examine deflections and cracks. We'll give you background material on the importance, control, and calculation of deflections. You'll be instructed in effective moments of inertia, long term deflections, simple-beam deflections, and continuous-beam deflections. We'll also review types of cracks, control of flexural cracks, ACI code, provisions concerning cracks, and miscellaneous cracks. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Shear and Diagonal Tension</b>	The objective of today's reinforced concrete designer is to produce ductile members that provide warning of impending failure. To achieve this goal, the code provides design shear values that have larger safety factors against shear failures than do those provided for bending failures. The failures of reinforced concrete beams in shear are quite different from their failures in bending. Shear failures occur suddenly with little or no advance warning. Therefore, beams are designed to fail in bending under loads that are appreciably smaller than those that would cause shear failures. This course discusses shear and diagonal tension on reinforced concrete and how different types of reinforcement can help mitigate the damage caused by cracking. Definitions related to concrete construction and reinforcement will be provided, as well as shear design example problems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Slender Columns</b>	When a column bends or deflects laterally an amount, its axial load will cause an increased column moment equal to $P \cdot \delta$ . This moment will be superimposed onto any moments already in the column. Should this $P \cdot \delta$ moment be of such magnitude as to reduce the axial load capacity of the column significantly, the column will be referred to as a slender column. In this course we will examine the characteristics of slender columns and how the ACI code applies to these columns, paying close attention to the calculations and procedures used in determining K factors and computing moment magnifiers. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Strength Analysis of Beams</b>	This course takes a look at strength analysis of beams according to the ACI code. You will be introduced to two different design methods, working-stress design and strength design; with the focus of the course pertaining to strength design. We will take a look at the advantages of strength design and why it has moved to the preferred method. We will examine two methods used for calculating structural safety of a reinforced concrete structure. We will take a look at varying expressions associated with stress load and beam integrity. We will explain the different ACI codes and how they relate to beam strength. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Two-Way Slabs, Equivalent Frame Method</b>	In this course, we will illustrate how moment distribution can be applied to the analysis of structures consisting of non-prismatic members. We will also explain the difference between the direct design method and the equivalent frame method, and list the properties of slab beams and columns. An example problem using the equivalent frame method will be demonstrated, as well as explanation of the benefits of computer analysis. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Utility Infrastructure</b>	Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities.	2	Fundamental
<b>Design of Water Efficient Buildings</b>	This interactive webcast will discuss approaches for conserving water including water efficient building technologies, simple systems for recycling and reusing water on site, and how to drastically decrease the demands on shared supplies. This course will also discuss the many great environmental and economic benefits to water efficient buildings. We will conclude with details on LEED (Leadership in Energy and Environmental Design) criteria for water efficiency, plus additional case study examples on innovations in wastewater treatment and reuse	2	Fundamental
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Designing and Specifying Pervious Concrete</b>	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
<b>Designing Buildings for Tornadoes</b>	This course will present the most up to date ideas about designing buildings for the devastating effects of tornadoes. The focus will be on how to improve building performance and reduce damage to buildings impacted by tornadoes. The presentation will cover tornado research topics, design methods using ASCE 7-10 with needed modifications to account for tornado wind structures, and some examples on how to apply these concepts to building design.	1	Intermediate
<b>Designing for Flood Loads Using ASCE</b>	This course will provide technical information important to flood design for all types of buildings and all types of flood conditions. We will cover the minimum design and construction standards required by regulations. You will learn the current design methodologies for foundation issues for both riverine and coastal buildings. This course will cover the limitations of prescriptive solutions for flood-design problems. Flood load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures and ASCE 24 Flood Resistant Design and Construction will be discussed. And you will learn how to retrofit existing buildings with flood-resistant features. As we learn more about this devastating hazard and communities strive to be more sustainable, flood provisions in state and federal regulations are changing, as well as design concepts and methodologies, making it essential for engineers to remain engaged with these changing methodologies.	2	Advanced
<b>Designing for Occupant Comfort: SPF Insulation</b>	The air barrier system within the building envelope is the most important single element in controlling moisture, energy losses and gains, and structural integrity. This 1-hour interactive online course covers the different factors that affect occupant comfort in buildings and the effectiveness of spray polyurethane foam (SPF) insulation in maintaining proper relative humidity and temperature levels.	1	Fundamental
<b>Designing Permanent Erosion and Sediment Control Systems</b>	Development of land, whether it is for a new highway or a new office building, requires the re-contouring of terrain. And as such, requires a redistribution of drainage patterns. This change in the land creates the potential for long term erosion through storm events that occur during the life of the project. To prevent long term erosion, permanent erosion and sediment control system need to be developed as an integral part of the projects' designs. The primary goals of this interactive online course are to familiarize Engineers, Architects and Contractors with the design and application of different Best Management Practices (or BMPs for short) in the design of Permanent Erosion and Sediment Control.	2	Intermediate
<b>Designing Temporary Erosion and Sediment Control Systems</b>	Earthwork activities during construction disrupt natural and man-made ground coverage, creating the potential for erosion hazards and the contamination of natural resources. This interactive online course teaches you about best management practices for temporary erosion and sediment control. You will also learn about common regulations and requirements set in place to minimize significant impact upon the health, safety and welfare of the community.	3	Intermediate
<b>Designing Using LRFD Principles</b>	What is LRFD? LRFD (Load and Resistance Factor Design) principles are used in structural engineering applications so structural reliability is more consistent across various materials and loading conditions. This concept becomes particularly important in performance-based design scenarios when the structural engineering solutions are required to address how the structure is used and expected to perform - and not prescriptive building codes. This interactive, online course will review load factors, resistance factors, and reliability theory. We will also discuss the four material types (wood, steel, concrete, and masonry), looking at how each of these material standards deal with LRFD design.	2	Intermediate
<b>Designing with Structural Composite Lumber</b>	What is structural composite lumber? Is it reliable enough to build with in your area? The building industry is constantly developing new materials. Some of this innovation has occurred in the design of timber construction materials. Many of the new products have higher load carrying ability and improved serviceability when compared to their sawn lumber equivalents. In addition, these material are often more sustainable. This interactive online course will focus on innovations in Structural Composite Lumber (SCL). As a designer, it is critical to understand these materials in order to safely and cost effectively design with them.	1	Fundamental
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced
<b>Downcycle, Upcycle, Precycle, and Recycle: Waste Prevention and Reuse</b>	This interactive webcast explores the concepts of downcycling, upcycling, precycling, and recycling. In an era of resource conservation, the idea of reuse is paramount to meeting sustainability goals. We will introduce green-minded professionals to the concepts of downcycling (reclaiming), upcycling (refashioning), precycling (reducing waste), and recycling (reuse). We will focus on the environmental, economic, and social benefits of these four types of waste prevention. In addition, we will look at the relationship between waste reuse and technological advancement. Lastly, we will explore case studies of cutting edge waste reuse and reduction.	2	Fundamental
<b>Drawing Shortcuts - Digital Drawing Tools</b>	In recent years, architects and their clients have begun to rediscover the benefits of using traditional imaging techniques such as sketching, drawing, and physical modeling to communicate their design concepts. As digital imaging and 3-D visualization have become ever more sophisticated (and complicated), many small offices have been forced to make expensive investments in time and software in order to remain current with the quickly evolving technology. Now, there is a new trend in visual communication that combines the best hand-drawing techniques, advanced reprographics, digital imaging, photography, and computer-generated information. In this course we will take a brief glimpse into the wonderful possibilities of using digital and traditional visualization techniques. Some examples are quick and easy to create, while others are very time-consuming and complicated. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Drawing Shortcuts - Drawing Compositions</b>	To take a photograph of a street scene, you would not simply point and shoot; you would first determine your subject and decide how to frame your image. Until you look through a viewfinder or at the LCD screen of a digital camera—or even your cell phone—your visual reference changes continuously as you look around. But the moment you focus the camera on your subject, you begin making rapid decisions about the composition of your photograph and answering a series of questions, such as: How close should I be to my subject? or Should I take a horizontal or vertical photo? In this course we will cover drawing considerations, views, and methods that will help you in answering those questions and more. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
Drawing Shortcuts - Tradigital Drawing	In recent years, architects and their clients have begun to discover the benefits of using traditional imaging techniques along with digital imaging and 3-D visualization. This discovery has spawned the term Tradigital. What does Tradigital mean? How does it affect you? In this course we will answer these questions and outline the steps for merging traditional and digital imagery styles. We will look at four different methods and how you can implement them into your design. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Coloring Tools	A black-and-white drawing is often all you need to communicate a design idea, but black-and-white has limitations. Imagine trying to portray autumn foliage on a tree with a black-and-white drawing, or trying to sketch a field of wildflowers in shades of gray! Adding color to your drawings can help you define different materials and objects and also give life to the image. Sometimes you can create a drawing in black-and-white, present the idea, and add color to it at a later time. We'll use some examples to show you that process and we'll recommend the tools you can use to achieve your desired results. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Drawing Tools	This course covers the basic how-tos of drawing in black and white with traditional products as well as how to create different effects using various techniques. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Drawing Types	This course identifies the basic varieties of traditional drawing, which range from simple sketches to sophisticated presentation renderings. In this course, you will learn how to construct various types of drawings. For each type of drawing, you will learn when to use it, its characteristics, (e.g., size, detail), and the process for developing each. By breaking the drawing process down into a series of small but strategic choices, you will build confidence in your visualization skills and overcome the fear of drawing that so many designers experience. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Entourage Drawing	Illustrating people, plants, trees, furniture, automobiles, graphics, and various entourage elements can be among the most challenging aspects of creating drawings. This course discusses sources that can be used to copy these elements, and also offers specific advice for drawing people, cars, and vegetation. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Electrical Fire Alarm Systems	This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification.	1	Fundamental
Essential Lighting: The Language, Metrics & Process of Lighting Design	This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad. The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment. The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective. Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics. There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
Essentials of Quality Concrete	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
Ethical Decision Making for Design and Construction Professionals	Designers, Planners, Architects, Landscape Architects, and Engineers all need to know about and adhere to established codes of ethics. Then you will protect the public and the environment now as well as in the future. This webcast gives you the history of the events that led to our current attitudes regarding ethical decision making. You will get specific examples of the consequences for making unwise decisions. You'll also receive instruction in the ethical considerations involved in making good, safe, ethical decisions. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Intermediate
Ethics for Professional Architects Part I	Unethical conduct by prominent individuals in various professions from government to business, from teaching to architecture, is constantly being reported in the news. In a time when our moral foundations are continually being questioned, what tools do architects have to deal with ethical dilemmas? In this 2-hour interactive online course, standards of ethical conduct are examined in a variety of situations amply illustrated with case studies. The architect will focus on ethical issues in contemporary professional practice by looking at a sampling of real ethical issues that other professionals sometimes face. Using the AIA Code of Ethics as a guide and applying the ethical decision making model, the architect will examine some of the everyday complex issues of professional practice, such as conflicts of interest, whistle-blowing, safety, confidentiality and gifts. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Ethics for Professional Architects Part II</b>	Unethical conduct by prominent individuals in various professions from government to business, from teaching to architecture, is constantly being reported in the news. In a time when our moral foundations are continually being questioned, what tools do architects have to deal with ethical dilemmas? In this 2-hour interactive online course, standards of ethical conduct are examined in a variety of situations amply illustrated with case studies. The architect will focus on ethical issues in contemporary professional practice by looking at a sampling of real ethical issues that other professionals sometimes face. Using the AIA Code of Ethics as a guide and applying the ethical decision making model, the architect will examine some of the everyday complex issues of professional practice, such as conflicts of interest, whistle-blowing, safety, confidentiality and gifts. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Ethics: Shades of Green</b>	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fire Essentials and Fire Science</b>	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
<b>Fire Safety Design: Egress &amp; Extinguishing Systems</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 4-hour interactive online course focuses on two important life safety protection features- means of egress and extinguishing systems- in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Fire Water Systems – Storage, Pumping &amp; Distribution</b>	Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems.	2	Fundamental
<b>Fire! Designing Means of Escape</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Floodproofing</b>	Flooding has caused damage throughout the United States and all areas of the World, ever since man decided to occupy areas adjacent to rivers and lakes. Recent history has shown an alarming increase in the amount of damage being experienced, in spite of the many efforts on the part of various levels of government to guide people out of the floodplains. This 5-hour interactive online course focuses on the floodproofing and/or retrofitting of buildings to keep them safe from flood damage, or at least, reduce their exposure to flood damage. There are several methods that can be employed to reduce flood damages. They include relocation, elevation, dry floodproofing, wet floodproofing, permanent barriers, emergency barriers, sewer backup protection and utilities protection. Very often, a combination of measures is the best choice to provide the most effective and cost-beneficial protection. This course covers all of the above methods of floodproofing. In addition to the types of floodproofing measures available, this course covers the selection issues that must be considered before selecting a measure to employ. These issues include: floodway implications; regulatory agency requirements at the federal, state and local levels, choosing the flood protection elevation; the building uses; human intervention; and the owner's preferences. Design requirements are presented for all of the floodproofing approaches, as well as discussions of required coordination, flood and geologic data implications and permit requirements. Finally, the course discusses the bidding process, contractor selection, and the construction phase of the project through final project approval. There is a test included at the end of each scenario of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Intermediate
<b>Florida - Wind Design and Wind Mitigation Requirements</b>	The Sunshine State is known for its beautiful beaches and tropical weather. Surrounded by warm ocean waters, it is this location that makes it especially vulnerable to severe tropical storms. Winds from these storms can cause severe destruction; therefore, the State of Florida has enacted building regulations to help minimize the damages caused by severe storms. This interactive online course will cover the latest wind design and wind mitigation requirements from the Florida Building Code (based on ASCE 7-10, the 2010 version of the ASCE standard). In this course, we will cover what is applicable in this building code, types of issues covered in the wind design arena, and changes to the wind speed maps. Other issues covered include exposure of a building site, opening protection and enclosure classifications for how to protect a building in wind regions. The code has an alternate all heights method, which will be covered briefly. We will also talk about roof and wall components, and the special requirements for those components in high velocity hurricane zones, or more specifically, south Florida.	1	Fundamental



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Florida Landscape Architects' Laws, Chapter 481 (V.13)</b>	This course provides two hours of training for Landscape Architects. The Florida Statutes and Regulations regulating landscape architecture are set forth with annotations elaborating on the concepts contained therein. Multiple-choice questions throughout the course encourage you to review and retain the material. It is crucial you understand the rules governing your profession. The profession of Landscape Architecture in Florida is governed by the Department of Business and Professional Regulation (DBPR). The DBPR has the authority to make rules, administer licensing examinations, set fees and oversee disciplinary proceedings. In this course we will review Chapter 481 of the Florida Statutes and Subtitle 61G10 of the Florida Administrative Code. It is in these two places where the rules and regulations governing the profession of Landscape Architecture can be found.	2	Fundamental
<b>Florida: Building Inspector's Laws &amp; Rules</b>	This informative course thoroughly explores the state of Florida's rules and regulations for building code administrators, building code inspectors and plans examiners. Requirements from Chapter 61G19 of the Florida Building Code Administrators and Inspectors Board are presented as well as a look at Chapter 468 from the Florida Statutes which discusses similar state regulations. In addition, FS Chapter 553 has been added. Chapter 553, Florida Statutes (F.S.), Part IV, is known as the Florida Building Codes Act. This statute addresses building construction standards and provides for a unified Florida Building Code. The information provided will keep any interested building professional informed on the latest licensing, penalty, certification, and education specifications for the state of Florida.	2	Fundamental
<b>Gabions - Design of Retaining Walls</b>	Gabions are a common method of construction for retaining walls. They can be less expensive and more aesthetically pleasing than concrete retaining walls. This 2-hour interactive online course contains guidance on how to design gabion retaining walls. The text of this course is taken from a design guide provided by Modular Gabion Systems, a manufacturer of gabions. Several design examples are provided to aid the student in understanding the design process. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Going Green with BIM and GIS</b>	The goal of sustainable design is to create healthy environments through environmentally responsible planning and development. Geographic Information Systems (GIS) and Building Information Models (BIM) are both sophisticated technological tools that provide information in a more efficient and readily available manner than traditional design tools (e.g., CAD, maps). Traditional tools prove too costly, too time-consuming, and do not contain sufficient information for environmentally focused assessments and performance analysis. This interactive online course will expose planning, design, and construction professionals to the importance of using Building Information Models (BIM) and Geographic Information Systems (GIS) to work collaboratively throughout projects and to help professionals develop a thorough understanding of how these technological tools provide critical information when making sustainability decisions. GIS and BIM allow project team members to answer questions and solve problems by warehousing data that can be quickly analyzed and easily shared. Both GIS and BIM allow for providing consistency in coordinating changes for the design team and allow advanced visualization before project siting (GIS), design, or construction (BIM) has taken place.	2	Intermediate
<b>Grading and Drainage Design of Modern Roundabouts</b>	Modern roundabouts are a proven and effective safety improvement for roadway intersections. The main focus of roundabout design documentation has been in its traffic capacity and geometry. Once these features are set, the vertical design (grading and drainage) becomes the most critical portion of the design execution and the main component in determining the construction cost of roundabouts. In this interactive online course, engineers, architects, planners and contractors will learn design techniques and best practices to develop efficient roundabout grading and drainage designs.	1	Advanced
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material.ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building with Steel - Part 2: Guidelines for Builders, Trades and Inspectors</b>	Green Building is rapidly becoming mainstream. Are you ready to meet the demands? Are you recommending and using steel as a primary structural building material? Do you know steel's level of recyclability and efficiency of assembly. This interactive online course will teach you Green Building using steel, with a focus on Cold-Formed Steel Framing. You'll get what you need to know the key elements that make up steel framing; plus you'll get techniques to fit plumbing and electrical components. This is the second course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED RatingsLight Gauge Metal Components for FramingFraming With Steel StudsInsulation and WaterproofingErecting an Engineered Steel HouseCommercial Applications	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Green Building with Steel - Part 3: Light Gauge Metal Components for Framing</b>	The use of steel as a primary structural building material is rapidly becoming mainstream in Green Building. It is inherently recyclable and easy to assemble. You can become an expert very quickly. This interactive online course will teach you to use steel in green building. You'll learn about structural and non-structural steel walls, steel wall components, details of assembly, steel flooring systems, and fasteners. This is the third course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED Ratings Guidelines for Builders, Trades and Inspectors Framing With Steel Studs Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications	2	Intermediate
<b>Green Building with Steel - Part 4: Framing With Steel Studs</b>	It makes more sense than ever to use steel as a primary structural building material. It is inherently recyclable and efficient to assemble. That makes it your best choice for sustainable building material. In no time you can be the local expert in green building with steel. This interactive online course gives you Green Building with a particular focus on framing with steel studs using Cold Formed Steel (CFS) and the various methods of building exterior and interior frames. This is the fourth course in the Green Building With Steel series. Additional courses are: Material Attributes, Manufacturing, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications It is helpful to you to take the first three courses in the Green Building With Steel series before beginning this one.	3	Intermediate
<b>Green Building with Steel - Part 5: Erecting An Engineered Red Iron Steel House</b>	Steel as a primary structural building material with its inherently recyclable nature and its efficiency of assembly is the logical and responsible choice for Green Building. You can become an expert in erecting a Red Iron steel frame house and you can learn how to earn the coveted LEED points for your project. This interactive online course provides you with the benefits of building with red iron steel as well as instructions for constructing floors, walls, and roofs. You also get information on secondary framing and finishing. Lastly you receive what you need to qualify for LEED certification. Other courses in this Green Building With Steel series provide additional information on the application and technical aspects of Steel Design and Construction. Material Attributes, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Framing With Steel Studs	4	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or underused out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series: Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Soil testing Hydrologic and hydraulic analysis Vegetation assessment, preservation, and transplantation Invasive species evaluation	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Working with community groups Attractive Streetscapes safe for pedestrians and vehicles Improvements that promote good health in cities Upgrades that are cost-effective and sustainable Changes that provide for increased security	2	Intermediate
<b>Green Infrastructure 4: Best Practices for Pavement</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Pavement lifecycle Pervious vs. impervious pavement Albedo or Reflectivity of pavement Pavement materials A materials program Material applications	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Mechanisms to affect right-of-way construction by private utilities Technology to minimize pavement damage and degradation Upgrades to utility installation and maintenance	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Integrated stormwater management planning Water pollution prevention Construction runoff prevention Surface pretreatments for filtering runoff Catch basin inserts and water quality inlets Detention and Infiltration structures Constructed wetlands	3	Intermediate
<b>Green Infrastructure 7: Best Practices for Landscape</b>	This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Citywide landscape planning Maintaining and enhancing biodiversity and ecology Landscapes capable of high rates of stormwater absorption, infiltration, and treatment Tree planting for quantity, density and diversity Turfgrass reduction Plant selection Designing water-efficient landscapes Pest Management	3	Intermediate
<b>Green Infrastructure 8: Best Practices For Construction</b>	This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts	1	Intermediate
<b>Green Landscape Design: Reducing the Urban Heat Island Effect</b>	As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live.	2	Fundamental
<b>Green Landscape Design: Water Conservation in the Landscape</b>	Were you aware that an efficient and effective irrigation system can reduce wasted water and save money? Current technology provides easy solutions to keep irrigation systems fine-tuned and make it easy to adjust remotely. This interactive online course will focus on the tenets of water conservation in landscaping including: appropriate plant selection, irrigation planning and design principles, efficient irrigation technologies, and others. Case studies of community conservation programs and site specific approaches are also featured.	2	Fundamental
<b>Green Street Retrofit</b>	How do you define a green street? This interactive, online course tells the story of street renovations implementing Low Impact Development design strategies. Retrofitting conventional streets into green streets provides stormwater treatment to remove pollutants from stormwater runoff and when feasible allowed to infiltrate as recharge. Monitoring of stormwater runoff volumes and pollutant loads can be conducted to demonstrate the effectiveness of the retrofit projects. Converted green streets also allow for educational potential to raise awareness about stormwater pollution (and solutions). This course will focus on the many environmentally friendly green infrastructure initiatives in Chicago, Illinois.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Green Streets</b>	Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and riversEnsure the street has the least impact on the surrounding environmentHelp ensure the safety of the pedestrian or bicyclist on the street Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Urban Design</b>	Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements	2	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.	2	Fundamental
<b>High Performance Landscapes: Protecting and Restoring Soil Health in Urban Landscapes</b>	Healthy soils are the foundation of a sustainable high performance landscape. Traditional design and construction practices often undermine the ability of soils to provide ecosystem services such as stormwater management, optimal plant growth, nutrient cycling, pollutant removal and water conservation. New thinking in the way we build and manage our soils is required for the future health and well-being of humanity. The importance of soils and its many ecosystem services has become more widely recognized and is now a component of green building certification systems such as LEED and SITES. Professionals who understand the basic principles of soil science and its relevance to landscape performance are better equipped to assist projects in achieving economic and environmental benefits. This interactive online course will provide an overview of soil science specific to the landscape design and construction industry, as well as the information needed to improve the overall performance of the site through strategic soil preservation and restoration practices.	2	Intermediate
<b>Historic Preservation: An Introduction</b>	Historic Preservation is the identification, protection and enhancement of historic resources or features. This 1-hour interactive online course covers not only the general underpinnings of the preservation and rehabilitation process, it also outlines the specifics on how to inspect and work with specific materials. Historic structures originate from a wide variety of time periods and areas. Consequently, there are a large variety of different materials examined in this course. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Concrete and Terra-Cotta</b>	Terra-cotta and concrete construction have created some of the world's most distinctive and historically significant structures. Unfortunately, many early concrete and terra-cotta buildings are threatened by deterioration. Effective protection and maintenance are the keys to the durability of these materials-many can be saved through preservation projects involving sensitive repair and replacement. This 1-hour interactive online course outlines the historic background of concrete and terra-cotta, the causes of their deterioration, methods to effectively inspect and analyze their current state as well as techniques of maintenance, repair and replacement. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Energy Conservation</b>	With the dwindling supply of energy resources and new efficiency demands placed on the existing building stock, many owners of historic buildings and their architects are assessing the ability of these buildings to conserve energy with an eye to improving thermal performance. This 1-hour interactive online course has been developed to assist those persons attempting energy conservation measures and weatherization improvements such as adding insulation and storm windows or caulking of exterior building joints. In historic buildings, many measures can result in the inappropriate alteration of important architectural features, or, perhaps even worse, cause serious damage to the historic building materials through unwanted chemical reactions or moisture caused deterioration. This brief recommends measures that will achieve the greatest energy savings with the least alteration to the historic buildings, while using materials that do not cause damage and that represent sound economic investments. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Exterior Additions and Substitutions</b>	The Secretary of the Interior's Standards for Rehabilitation require that deteriorated architectural features be repaired rather than replaced wherever possible. In the event that replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual properties. This 1-hour interactive online course discusses the importance of maintaining historic character and illustrates how and when substitute materials may be used to match the appearance and general properties of the historic material without damaging the historic resource. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Rehabilitating Interiors</b>	While the exterior of a building may be its most prominent visible aspect, or its public face, its interior can be even more important in conveying the building's history and development over time. This 1-hour interactive online course has been developed to assist building owners and architects in identifying and evaluating those elements of a building's interior that contribute to its historic character, and in planning for the preservation of those elements in the process of rehabilitation. The information covered applies to all building types and styles, from 18th century churches to 20th century office buildings. The course discusses historic interior paints, and addresses a variety of materials and features: plaster walls and ceilings; wooden doors, molding, and trim; and metal items such as radiators and railings. It provides background information about some of the types of paint which were used in the past, discusses the more common causes and effects of interior paint failure, and explains the principal factors guiding decisions about repainting, including what level of paint investigation may be appropriate.	1	Fundamental
<b>Historic Preservation: Roofing for Historic Buildings</b>	No matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitably fail. A poor roof will permit the accelerated deterioration of historic building materials-masonry, wood, plaster, paint-and will cause general disintegration of the basic structure. This 2-hour interactive online course covers the historic character of a building, describes how to examine and record the existing roof, considers historic craftsmanship and gives detailed instructions on how to properly research, stabilize, repair and replace historic roofs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Hurricane Damage Investigations - Wind vs. Water</b>	In the aftermath of a hurricane, being able to determine wind damage vs. water damage is very important. This interactive online course will describe a methodology based on engineering principles and coastal science to determine the extent of damage to coastal buildings impacted by storm surge and high winds, based on wind field analysis matched to storm surge inundation and wave heights. This course provides an engineering investigative method that helps the engineer be the real expert when it comes to determining losses from damaging coastal storms.	2	Intermediate
<b>HVAC Acoustics</b>	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
<b>Hydraulic Design of Storm Sewers</b>	Storm sewers are the hidden workhorse of our infrastructure. They are designed to ensure our urbanized communities remain dry and maintain safety during extreme events. For this reason it is important that storm sewers are designed with special detail and care. This interactive online course will discuss the design of storm sewer systems and its two core theories, the conservation of mass and energy. A sample spreadsheet will be provided as part of the course to help practitioners in the design of storm sewers.	2	Advanced
<b>Impacts of the 2010 ADA Guidelines</b>	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>Increasing Building Energy Efficiencies: Policies and Practice</b>	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPCA05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
<b>Innovative Heat Pump Technology</b>	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
<b>Interior Lighting for Designers: Daylight and Filament Sources</b>	Available daylight is considered because its use in interiors greatly reduces the power consumed by electric lighting. In addition, light from the sun and sky and views to the exterior significantly enhance the quality of the interior environment and our satisfaction with it. Only at this point, after these considerations are carefully assessed and preliminary design decisions made, are you ready to select the electric light source(s) appropriate for each particular interior environment. In this interactive online course, two light sources are presented in their approximate order of introduction to the marketplace. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Interior Lighting for Designers: Design Factors</b>	This interactive online course begins with a thorough understanding of the human visual system: how the eye and brain work together to create our perception of the world around us. Much in the way you select background music to support the activities and environment of a room—classical music, jazz, or indie rock, for example. This course will describe how you establish the lighting composition to create a supporting psychological environment. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Interior Lighting for Designers: Interior Illuminations</b>	Almost all electric sources generate light in a distribution poorly suited to architectural lighting. Methods of optical control of the primary light source are discussed in this course. This interactive online course will show you how to select the specific luminaires that will achieve your desired objectives from the wide range of available products in the marketplace. You will be able to create the lighting design and the lighting layout that communicates it. This course will define sustainable design as one of the cornerstones of effective lighting practice and list the maximum benefits to the occupants. Finally, this course will show how construction documents are produced to contain the designer's complete written and drawn plans and specifications to communicate with the utmost clarity all of the information required by the installing contractor to deliver the designer's intent.	4	Fundamental
<b>Interior Lighting for Designers: Low- and High-Intensity Discharge Sources</b>	In electric discharge lamps, light is produced by the passage of an electric current through a vapor or gas rather than through a tungsten wire as in incandescent lamps. The light production by discharge sources is more efficient than the electric heating method used in filament lamps. Discharge lamps used in architectural lighting are more efficient and have a longer life. This interactive online course will introduce you to the functionality of fluorescent lamps as well as the differences and uses of mercury vapor, high-pressure sodium, and metal halide lamps. We will cover the potential drawbacks of low-pressure sodium lamps and discuss how the selection of phosphors affects lamp color. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Interior Lighting for Designers: Solid-State Lighting and Auxiliary Equipment</b>	This interactive online course begins with an introduction to solid-state lighting, or more commonly referred to as LEDs or OLEDs, and continues on to explore their uses, design, construction, and function. We will also take a look at the advantages and disadvantages of LEDs. In the second half of this course, we will take a look at the auxiliary equipment that is needed to supply the current and/or voltage to solid-state lights and other types of indoor lighting. We will look specifically at the three main categories of auxiliary equipment. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015. All rights reserved.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>International Building Code &amp; More: About the Codes</b>	A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Fundamental
<b>International Building Code &amp; More: Code Officials and Code Processes</b>	This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Family Residences, Existing Structures and Historic Buildings</b>	This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Finish and Furniture Selection</b>	This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Intermediate
<b>International Building Code &amp; More: Fire Protection Systems</b>	Fire and smoke are the primary threats to the safety of the occupants in a building. Fire and smoke can travel quickly both horizontally and vertically unless special efforts are made to prevent this from happening. The use of rated assemblies in this passive system of fire protection is considered the first step in controlling the spread of smoke and fire. This course will discuss the active fire-protection system and its components, which include detection, alarm, and extinguishing systems, and will provide a fire protection checklist at the end of this course. The overall aim of the fire-protection system is to detect a fire in a building or space, warn the occupants, and suppress the fire until the fire department arrives. If that fire can be detected quickly, occupants have more time to exit the building safely and with less panic. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>International Building Code &amp; More: Means of Egress</b>	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental
<b>International Building Code (IBC) - Assembly Spaces</b>	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code (IBC) - Care Facilities Provisions</b>	This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.	3	Fundamental
<b>International Building Code Significant Changes to 2012 Edition</b>	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>International Snapshot on Sustainable Infrastructure</b>	The scientific community overwhelmingly agrees that global warming and changing climate patterns will become more disruptive and have detrimental impacts on essential sectors of our society. These changes, such as extreme weather events, rising temperatures, flooding and droughts, all significantly impact our infrastructure. We are faced with simultaneous threats of aging infrastructure, damage from a changing climate, lack of funding and political paralysis. So how do we respond? Looking around the world, who is taking action now and leading innovations on tackling the challenges of creating sustainable infrastructure systems. The aim of this course is to present a snapshot of this complex dilemma.	2	Fundamental
<b>Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
<b>Introduction to Net Zero Buildings</b>	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental
<b>Introduction to Rain Gardens</b>	Rain gardens have become very popular, with good reason. You can create landscapes that add beauty, wildlife habitat, and interest to an area - while helping manage storm water more sustainably. You can use them to meet LID (Low Impact Development) requirements. This interactive online course will teach you how to significantly reduce the impacts of development and also aid in improving storm water quality.	2	Fundamental
<b>Introduction to Sustainable Design and Construction Using Green Globes</b>	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental
<b>Introduction to Sustainable Roof Technologies</b>	Roofs account for one of the largest areas of imperviousness on a site. Impermeable roofs impact storm water quality and quantity, air quality, the urban heat island effect, and the energy needs of the building. This interactive webcast focuses on how we can potentially rethink how we build our roofs to ensure energy efficient buildings, harness energy from the sun to help us reduce our reliance on fossil fuels (nonrenewable energy), manage storm water as a resource, increase air and water quality, and reduce greenhouse gas emissions. We will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. We will conclude with creative applications and site selection and placement considerations of sustainable roofs.	2	Fundamental
<b>Introduction to the ISI Envision Rating System</b>	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
<b>Introduction to Wetlands</b>	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
<b>Irrigation Practices for Commercial and Residential Sites</b>	This Webcast is a full-spectrum discussion of irrigation practices. We'll start with history, discuss fundamentals, move on to proper design, and finish with alternative approaches to traditional irrigation methods. You'll receive valuable information on effective, efficient irrigation methodology for all residential and commercial needs.	2	Intermediate
<b>Land Development Projects: Design of Infrastructure</b>	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Land Development Projects: Developing Feasibility Studies</b>	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
<b>Land Development Projects: Grading and Drainage Design</b>	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
<b>LEED v4 - Certified Buildings Under the O&amp;M and BD+C Categories</b>	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
<b>LEED v4 - Operations and Maintenance</b>	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
<b>LEED v4 and Data Center Construction</b>	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental
<b>LEED v4 and the Future of Green</b>	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criteria and its impact on the future of sustainable new construction.	1	Intermediate
<b>LEED v4 for Commercial Office Buildings</b>	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Existing Buildings: Operation &amp; Maintenance (EBOM)</b>	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
<b>LEED v4 for Healthcare Facilities</b>	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Hospitality Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for Interior Design + Construction</b>	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
<b>LEED v4 for New Construction Projects</b>	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
<b>LEED v4 for Retail Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>LEED v4 for School Buildings</b>	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>LEED v4: Neighborhood Development</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals -- from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
<b>LEED v4: Residential Homes</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental
<b>LEED: Water Efficiency</b>	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate
<b>LID Technologies</b>	A low-impact development (LID) design approach is defined as a combination of hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. This course will provide an overview and introduction into the philosophy, objectives, various design approaches, economic and environmental benefits, and management practices of low-impact development. Specifically, course will demonstrate how to develop land and maintain the predevelopment hydrologic regime by using current structural and nonstructural storm water management technological approaches.	2	Fundamental
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Movement Joints in Brick Masonry</b>	Brick masonry is one of the most durable exterior building materials in use around the world. It is a preferred product in most climate areas, from subtropical to near arctic, and for buildings from simple residences to monumental international architecture. When Mies van der Rohe proclaimed God is in the details, he may very well have been thinking of masonry construction. Masonry's long term success depends on designers and installers understanding the physics of masonry movement and the time-tested methods of accommodating that movement. This need is particularly important in commercial and institutional buildings due to their more rigid structural construction and the size of their walls. This 1-hour online interactive course discusses a number of different causes of brick movement and the methods that can be used to accommodate this movement.	1	Fundamental
<b>Nanotechnology and Sustainability</b>	Are you ready for your world to change due to the contributions of nanotechnology? You can be confident in your understanding of nanotechnology, its impacts, and its relationship to sustainability. You can reap the benefits for yourself and your clients. This webcast gives you the potential that nanotechnology, specifically nano-products, brings to sustainability. Topics include new energy creation and storage opportunities, improved product durability, water quality improvement, pollution mitigation, as well as benefits and potential dangers of nanotechnology.	1	Intermediate
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements</b>	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #2</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #3</b>	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Parking Lot Design: Elements of Design</b>	This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.	2	Advanced
<b>Parking Lot Design: Essentials</b>	This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Parking Lot Design: Parking Studies</b>	This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continued to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>Phytotechnologies: Using Plants to Clean Up</b>	Phytotechnologies are a set of techniques that make use of plants to achieve environmental goals. This course will highlight the advantages and limitations of phytotechnology—whereby plants uptake and remove contaminants. We will also cover the cost-effective, natural cleanup methods that have a growing role in the following areas: remediation of environmental contaminants, eco-restoration, engineered wetland systems, and biofuels. The course will conclude with a discussion of current scientific case studies.	3	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Pier and Beam Foundation Design</b>	This course will provide technical information important in the design of pier and beam foundation systems. The design process will focus on how to apply wind and flood loads to these foundation systems using ASCE 7-10, ASCE 24, the Wood Frame Construction Manual and the International Building Codes. The use of the masonry code will also be covered. An example is included that uses elements of each of the important references. Design methods for these foundations are not covered in most structural engineering programs at the university level and have not been found in any practice journals. While the design wind loads are frequently determined for buildings, the distribution of these loads to the foundation and supporting soil and the inclusion of flood loads are important and crucial elements of the design process.	2	Advanced
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations</b>	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups</b>	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling</b>	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure</b>	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan</b>	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope</b>	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope</b>	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities</b>	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule</b>	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration</b>	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 12-Controlling Costs</b>	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 13-Estimating &amp; Budgeting Project Costs</b>	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 14-Project Quality Planning</b>	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control</b>	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources</b>	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources</b>	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications</b>	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced
<b>Power of an Energy Audit</b>	An energy audit is often the first step in energy consumption reduction. This interactive webcast will introduce green building professionals to the importance of conducting an energy audit to assess energy use and measures to implement for energy conservation. We will discuss the four levels of analysis, including: benchmarking, walk-through audit, detailed/general energy audit, and investment-grade audit. This course will also focus on how auditing can help identify cost-saving opportunities and prioritize improvements. An energy audit is an inexpensive yet powerful way to reduce costs and improve performance. Energy audits also are an important step to help meet greenhouse gas reduction goals. Finally, we will focus on the competitive positioning of energy auditing by touting successes and attracting and engaging more customers.	2	Fundamental
<b>Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project</b>	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
<b>Principles of At-Risk Construction Management</b>	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
<b>Principles of Design-Build</b>	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental
<b>Principles of Professional Construction Management</b>	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Team Management</b>	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Protecting and Restoring Habitat in Urban Ecosystems</b>	Ecosystems provide humanity with the products and services needed to sustain a high quality of life on this planet. Unfortunately, urban development and mechanical disturbance destroy or damage over 400 square miles of ecosystems every year in the United States alone (Johnson, Brown, Loveland, & Theobald, 2005). However, with thoughtful preservation and restoration, living systems can be integrated into our built environments and can continue to provide services such as clean air, clean water, climate regulation, wildlife habitat, and improved human health and well-being. This interactive online course will help you understand how the design and management of habitat in urban areas affects the services it provides to the community. It will discuss the processes that drive the development of ecosystems and how these processes can be used to restore and manage nature in urban settings. The course will cover strategies for habitat mitigation. It will also discuss the components of restoration and Integrated Pest Management plans. Lastly, the course will describe strategies for achieving community understanding and support for urban habitat conservation.	3	Intermediate
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Protecting Water Systems Through Backflow Prevention</b>	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
<b>Reinforced Concrete Tilt-Up Panels</b>	The term tilt-up panel is almost self-descriptive. This method of construction has been utilized through history, but only relatively recently have the advantages become economically viable. A combination of labor savings, speed of construction, and good finish quality, has made tilt-up panels more competitive. The following course will explain the tilt-up panel method of construction, itemize some of the current advantages of this construction method, and give an example of the design of a typical warehouse type building constructed of tilt-up walls.	1	Intermediate
<b>Reinforced Masonry Design</b>	What is reinforced masonry? Reinforced masonry is often used for building foundations and exterior walls, for resistance to earthquake and wind loads, and where compressive resistance to loads is required. Where unreinforced masonry has some limited uses, reinforced masonry can be used in most building applications under most loading conditions. Masonry design is rarely taught in college design courses so practitioners must re-search how to use this material in design. This interactive online course will focus on reinforced masonry design and how the use of this design method is employed everyday for buildings, foundations, and retaining walls. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
<b>Residential Green Building: Design, Construction, and Accreditation</b>	Green Building is rapidly becoming mainstream, mostly due to increasing environmental concerns, a desire to develop healthier structures, and increasing regulation from the permitting authorities. This 4-hour interactive online course starts by debunking many green building myths and then moves into a comprehensive discussion of its elements. The course takes a close look at green building in relation to many aspects of design and construction including issues dealing with sites, landscaping, foundations, frames, exterior finishes, plumbing, appliances, insulation, ventilation, windows, finishes, and flooring. The course wraps up with information on testing, certification, and accreditation, including a look at the LEED program and the NAHB Green Home Certification Program. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Green Remodeling: Design, Construction, and Certification</b>	This course will introduce residential construction professionals to green building and renovation strategies, practices, and materials. In addition to its positive environmental impacts, green building ultimately results in a healthier and a more affordable home for clients. If a program is implemented effectively, it's also good for the residential remodeler's financial bottom line. The green building and remodeling market continues to grow, providing great opportunities for building professionals to develop and expand their businesses. This course provides a comprehensive discussion of the unique aspects of green remodeling with a focus on building evaluation, deconstruction, handling of hazardous waste, materials recycling and reuse, energy conservation, indoor air quality, use of environmentally safe products, design principles, system planning and construction best practices. The course also provides an overview of green building certification programs, green building professional accreditation programs, and incentives available from government agencies and utilities. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Retaining Wall Design - Part 1</b>	This 2-hour online course is part 1 of a two part course for analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 involves the description of retaining walls, a review of the soil mechanics necessary to calculate the forces acting on the wall, and resisting the movement of this structure. Further, this course describes the procedure for evaluating the stability of the retaining wall. The body of this course is presented in a word document format which you must download. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Retaining Wall Design - Part 2</b>	This 2-hour online course is part 2 of a two part series on analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 described the process of determining the stability of this type of structure, while this part is involved with determining the internal forces and stresses of the cantilever retaining structure and selecting sizes and spacing of steel reinforcing and dimensions of a reinforced concrete cantilever retaining wall. Appropriate sections and equations of the American Concrete Institute's ACI318 (latest edition) will be referenced in the design process. Due to the extensive amount of math used in this course, it is presented in a Word document format which must be downloaded by the student. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing - Flexible Membrane Edge Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading and the most critical area for wind loading is the edge of the roofing system. This 2-hour interactive online course provides a design guide for edge systems used with low sloped flexible membrane roofing systems. Another RedVector.com course is available on materials used for flexible membrane roofing and additional courses are available on other design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Roofing - Flexible Membrane Wind Load Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading. This 2-hour interactive online course provides a design guide for low sloped flexible membrane roofing systems. It also includes several design examples that go through the entire design process for wind loading. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Roofing Materials - Asphalt Shingles</b>	One of the most commonly used materials available for roofs is asphalt shingles. This 2-hour interactive online course covers a variety of topics related to asphalt shingles, such as underlayment requirements, ventilation and potential problems with shingles. Asphalt shingles are very common on residential roofs in much of the United States and are also used on smaller commercial buildings. Because they are so common, proper use, specification and design of asphalt shingle roofs are often overlooked. This course will provide guidance for designers of new asphalt shingle roofs and some guidance on replacement requirements for existing roofs. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Concrete Tiles</b>	Concrete tile is one of the most durable roofing materials available. This 2-hour interactive online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Flexible Membranes</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. The materials used for membrane roofs include thermoset materials, thermoplastic materials and modified bitumen materials. This 3-hour interactive online course covers an introduction into these materials and products used with them, including fasteners, insulation materials, adhesives and fabrics. Additional RedVector.com courses are available on design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Site Engineering for Landscape Architects: Contours, Forms, Interpolation, and Slope</b>	A clear understanding of what a contour represents is fundamental to the grading design process. Technically defined, a contour is an imaginary line that connects all points of equal elevation above or below a fixed reference plane or datum. This datum may be mean sea level or a locally established benchmark. A contour line is the graphic representation of a contour on a plan or map. In order to make informed design decisions as well as to execute construction drawings accurately, landscape architects require topographic data for all site development projects. This course discusses the concept of contour lines and delineates a baseline of common contour signatures. The course expands on these concepts with explanations of interpolation and slope formulas and examples of their applications. This course also introduces the basic mathematical equations associated with plotting and manipulating contour lines. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Design and Layout</b>	When planning landscaping projects, it's important to understand that grading IS design. Grading and site design are two highly related and dependent processes, and to achieve an appropriate final project, both must be integrated at the outset of a project. A change in grade must be purposeful, whether for functional or aesthetic reasons. In this course, we will cover the role of site engineering in the aesthetic, perceptual, spatial, and environmental considerations of a design. We will examine the categories of aesthetics: geomorphic, architectonic, sculptural, and naturalistic. We'll explain the uses of four types of perception. We will also discuss methods and practices associated with developing the layout plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Designing and Sizing Storm Water Management Systems</b>	The purpose of managing runoff is to ameliorate safety and health hazards, including flooding and property damage, stagnation, earth slides, and reduced soil-bearing capacity; to increase the usability of areas through the elimination of unwanted water; to provide better growing conditions for plants by increasing soil aeration and reducing soil saturation; and to prevent erosion by reducing the rate of flow and volume of runoff. There are a variety of management techniques that may be used to control storm water runoff. The purpose and environmental conditions will influence the selection of appropriate techniques. This course will discuss storm water management, soil erosion, and the design and sizing of management systems, with particular emphasis on the Rational, Modified Rational, and TR55 Natural Resources Conservation Service methodologies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Determining Rates and Volumes of Storm Runoff</b>	To design and size storm water management devices, such as grassed swales, drainage pipes, and detention storage ponds, it is first necessary to estimate the rates and volumes of runoff that must be handled. The science of hydrology, which deals with precipitation and runoff, includes a number of models that help predict the runoff to be used as input to the design procedures. This course discusses the Rational method and Modified Rational method for designing and sizing of management systems, and provides examples of how these methods may be applied. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
Site Engineering for Landscape Architects: Estimating Runoff Rates, Volumes, and Required Detention Storage	The USDA NRCS, formerly known as the Soil Conservation Service (SCS), has developed a methodology for determining runoff rates and volumes. In this course we will cover rainfall patterns; the procedures of TR55 including computing runoff, hydrologic soil groups, and discharge method; and estimating detention storage volume. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Grading	A clear understanding of what grading represents is fundamental to the grading design process. In this course we will compare environmental and functional restraints. You will get information and instruction on design problems of both types of elements, slope formula, and storm runoff. We'll also cover methods for grading terraces, the grading process phases, and the grading plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
Site Engineering for Landscape Architects: Horizontal and Vertical Road Alignment	The purpose of this course is to present the basic engineering necessary to lay out roads and drives in the landscape. In order to create safe, enjoyable, and easily maneuverable vehicular circulation, roads must be engineered in both the horizontal and vertical planes. In this course you will receive information, examples with solutions, and opportunities to test your retention of the material presented. We will review basic components of road alignment and definitions of circular curve elements. You will get step-by-step processes and road alignment procedure. We will examine various approaches to design and practice making calculations using proven formulas. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Soils in Construction and Earthwork	Soil structure and composition need to be considered in many aspects of site development. This course focuses on the use of soil as a construction material and provides an overview of how physical and engineering properties vary with soil type. We will cover definitions, soil characteristics, soil classifications systems, geotextile types and applications, and earthwork grading activities. We'll also give you examples of the computation of cut-and-fill volumes. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Storm Water Management and Control	The acts of grading and controlling and managing storm water runoff are inextricably linked. Almost all site development projects result in the remodeling and sculpting of the earth's surface as well as changes in surface character. These changes may significantly alter storm runoff patterns in terms of rates, volumes, and direction. Landscape architects and site planners must understand the consequences if these changes are to be effected in a safe, appropriate, and ecologically sensitive manner. This course provides an introduction to basic management principles and techniques, as well as potential problems caused by storm water runoff. The proper design of any management system requires an interdisciplinary approach, including professional expertise in ecology, engineering, hydrology, and landscape architecture. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Storm Water Management System Components	In this course we will introduce a range of tools that may be employed singly or in combination on a single site to manage storm water. We will review the traditional storm water management system components and the principles and techniques. We will cover infiltration systems and detention systems. You'll get discussions of rain-water harvesting and constructed wetlands. We'll also explain the unifying concept of using planted structures or other landscape interventions to decentralize storm water management and minimize the need for extensive pipe and drain structures. You'll also get three case studies to analyze. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Planning and Design	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
Site Utility Design: Commercial Buildings	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Smart Business Writing: Writing Effective Emails	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
Smart Sales 1: Understanding the Psychology of Sales	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
Smart Sales 2: Identifying the Decision Maker & Setting Appointments	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
Smart Sales 3: Securing Appointments & Advancing the Sale	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals Generate leads Learn about other companies and their hierarchies Leverage powerful tools to find and reach the right people Tap into the knowledge of their network, and Discover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Soils and Foundations: The Low Down on Dirt</b>	Soils issues and ineffective water management methods create serious problems with foundation systems and structures. Understanding the core soil problems faced in the construction industry and methods to overcome them allow you to avoid the associated issues. This interactive online course will teach you about some of the most common issues found with soils and how to overcome them. You will also learn about ICC codes that govern site inspections. Additionally, you will learn about geotech reports and best practices when assessing soil conditions.	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Space Planning: Design Fundamentals</b>	<p>The search for beauty probably begins with the story of mankind itself, yet undertaking the design of an office or departmental interior today can be a daunting task. Any decisions we make concerning layout, color, wallpaper, flooring, furnishings or lighting could have a lasting effect on an organization and its people. It is not surprising, therefore, that as space planners and designers, we shoulder a heavy burden of responsibility; we owe it to our clients to give them the best possible solutions that fulfill their needs. This 2-hour interactive online course should be used as a basis to create a space that is both functional and aesthetically pleasing. This course of Design Fundamentals is broken into three sections:</p> <ul style="list-style-type: none"> <li>Functional &amp; Aesthetic Aspects</li> <li>Design Principles</li> <li>Elements of Interior Design</li> </ul> <p>This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Fundamental
<b>Space Planning: Design Methodology</b>	<p>Today's contemporary office environment is often a sophisticated and intricate ecosystem of many interrelated elements and sub-systems, in which various individuals occupy space. These individuals have special needs, and the diligent space planner is required to address these needs. This 2-hour interactive online course should be used as a basis to recognize such influencing factors as evolving computer and communications technologies, psychosocial elements of the workplace and planning for future expansion and growth. This course of Design Methodology is broken into five sections: Programming Phase: Creating the Brief or Program Schematic Design Phase: Concept Development Design Development Construction Document &amp; Bidding (Tendering) Phases Contract Administration: Execution &amp; Supervision Phase Feedback and Post-occupancy Evaluation &amp; Additional Services This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Fundamental
<b>Space Planning: Furniture and Furnishings</b>	<p>The workforce is changing under the onslaught of modern technology, and with it the office landscape. As we settle into the information age, the increase in population of white-collar workers continues to outpace that of other segments of the labor force. The higher level of training required for these upper-level positions has manifested itself in an increase in employee absenteeism and turnover. This is beginning to pose serious financial and productivity problems to the corporate world. This 2-hour interactive online course should be used as a basis to plan a workplace environment that will facilitate greater interaction between people and their support facilities. This course of Furniture and Furnishing is broken into six sections:</p> <ul style="list-style-type: none"> <li>Main Furniture Styles</li> <li>The State of the Furniture Industry Today: Part I</li> <li>The State of the Furniture Industry Today: Part II</li> <li>Fabrics &amp; Fabric Selection</li> <li>Recent History - The Leap Forward</li> <li>Flooring &amp; Wall Treatments</li> </ul> <p>This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Space Planning: History and Overview</b>	<p>In attempting to study the early historical development and evolution of space planning and interior design, one needs to simultaneously draw upon and understand the interrelationships of other elements and disciplines, such as architecture and the decorative arts. This also includes ornamentation and furniture, which historically followed the development of architecture. This 3-hour interactive online course should be used as a basis for a better understanding of the lines of development and evolution that led to the current status of our own development, and to correct our myopic vision regarding our design inheritance. This course of History and Overview is broken into five sections:</p> <ul style="list-style-type: none"> <li>Space Planning, Furniture, and Design in Antiquity</li> <li>Greece &amp; Rome</li> <li>Middle Ages &amp; The Renaissance</li> <li>The Baroque and Rococo &amp; Neoclassic Period and 19th Century Revival Styles</li> <li>Recent History - The Leap Forward</li> </ul> <p>This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Fundamental
<b>Space Planning: Security Issues</b>	<p>In today's built environment, security has taken on a new meaning. Terrorism as well as natural disasters usually strike with little or no warning. Terrorism in particular is now a recognized international phenomenon against which governments need to institute protective measures. It is hardly surprising that in the wake of the gruesome 1995 Oklahoma City bombing and the September 11, 2001 terrorist attacks on the World Trade Center and the Pentagon, the issue of security in office buildings took on a new imperative. This 1-hour interactive online course should be used as a basis to balance society's need for security with traditional and psychological values and spiritual needs. This course of Security Issues is broken into two sections: Types of Security Threats, Defining Security Needs and the Role of the Space Planner &amp; Methods for Improving Safety and Security Egress Planning and Emergency Management, The Parking Problem, New GSA &amp; Legal and Liability Issues This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Stormwater Harvesting: A Green Concept</b>	<p>Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.</p>	3	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Stormwater Management: Low Impact Development (LID)</b>	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to help combat the significant stormwater problems produced by traditional development methods. A number of these methods fall into the category Low Impact Development (LID) which focuses on water resource and natural resource protection. This 3-hour interactive online course describes a number of the LID methods that have been proposed. It includes information on applicability, design considerations, limitations, maintenance considerations and pollutant removal effectiveness of these methods. The course is based on guidance provided by the US EPA.	3	Intermediate
<b>Structural Design Philosophies ASD &amp; LRFD</b>	Structural engineering design philosophy is based on determining the demand on an element and designing that element with the capacity to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	1	Intermediate
<b>Structural Insulated Panels (SIPs)</b>	Structural Insulated Panels (SIPs) are a new sustainable structural panelized building material that can be used for roofs, floors, and wall panels. This course will examine various uses and structural limitations on the materials. An exploration of code requirements and constructibility will be included. Design examples will illustrate cost effective approaches to incorporating this new sustainable material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Intermediate
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
<b>Sustainable Design: Eco-efficiency of Roofing Insulation Systems</b>	This 1-hour interactive online course explores several popular roofing insulation systems - Expanded polystyrene (EPS), Polyisocyanurate (Polyiso), Extruded polystyrene (XPS), and Sprayed Polyurethane Foam (SPF) - and discusses the influences each one has on sustainable design. It is divided into the following sections: Sustainable Development/Insulation Systems/Technical Aspects/Environmental and Economic Aspects/Appendix The course begins with an introduction to sustainable development, compares different plastic insulation systems, then follows up with some technical points on each system. Lastly, eco-efficiency analysis is explained and the environmental and economic aspects of each system are discussed.	1	Fundamental
<b>Sustainable Sites Initiative and the SITES® Rating System</b>	How are you planning on the development of your next site? Have you planned on how you can maintain a healthy ecosystem on your site? This interactive online course introduces course participants to the Sustainable Sites Initiative (SITES®), which is an interdisciplinary effort and framework for the SITES® Rating System based on the concept of ecosystem services, or the benefits that people enjoy from healthy natural systems promoting sustainable land development and management practices. This course includes a discussion of the history and participating entities of the SITES effort. This course will also provide an in-depth study of SITES® Rating System national guidelines and performance benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection for sustainable land design, construction and maintenance practices. This course will conclude with case studies of certified sites fostering resiliency, ecosystem services, human health, materials, soils/vegetation, and water.	2	Fundamental
<b>Sustainable Solutions: Air Pollution</b>	Welcome to the course Sustainable Solutions: Air Pollution. In this course we will explore the relationship between air pollution and site development. Major pollutant sources and their impacts will be discussed along with strategies for reducing embodied energy and creating favorable microclimates that benefit the site and surrounding area. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	2	Fundamental
<b>Sustainable Solutions: Human Health and Well-Being</b>	This course emphasizes the importance of using site design to increase physical activity within a community and provides strategies for doing so. It addresses the subject of maintaining positive mental health through the integration of natural landscapes. Strategies for implementing opportunities for social interaction among adults and spontaneous play among children are also discussed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Invasive Species</b>	A foundational principle of an ecological education is the notion of a species' native status. The idea has to do with where a species evolved and was able to establish without the aid of humans. At the other end of the spectrum, an invasive species is defined as one that is nonnative to a particular ecosystem and whose introduction into that system causes or is likely to cause economic or environmental harm or harm to human health. In this course, we will learn about explore the characteristics of an invasive species and cover methods of how to control and prevent invasive species, such as encouraging high-diversity plant communities, limiting habitat fragmentation, maintaining a healthy disturbance, minimizing resource input, and utilizing an Integrated Pest Management (IPM) plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Loss of Biodiversity</b>	Biodiversity refers to the richness and distribution of species living in a given area. This course will deal with strategies to effectively mitigate negative impacts to habitat and to restore damaged or degraded natural systems on-site. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Urban Flooding and Water Pollution</b>	As the U.S. was discovered and populated, people located their families and businesses near water. Living near water brings many opportunities and some inconveniences. In this course we will review some basics about flooding and water pollution as well as explore some specifics about these catastrophes and the sustainable solutions we can employ to prevent them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Water Shortages</b>	Over the next forty years, the global population is expected to increase from 6 billion to an estimated 9 billion, yet the world's water supply is constant. Only 3 percent of the global water supply is fresh; the majority of it is locked in ice or stored deep in the earth, making its extraction very expensive. The remaining 97 percent is found in the oceans and is too salty for human consumption, irrigation, and industrial uses. Water from the oceans can be processed; however, desalination is an energy-intensive practice. In this course we will explore site strategies for reducing water waste and recharging groundwater supplies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Sustainable Urban Design: High Speed Rail</b>	High Speed Rail is an increasingly popular means of rapid passenger transit, capable of speeds up to 250 miles per hour. As demand for more efficient, eco-friendly means of mass transit increases, so does the appeal of high speed rail as a more prominent means of travel in the United States. This 1-hour webcast discusses key concepts of High Speed Rail and compares it with other popular modes of transportation.	1	Intermediate
<b>Swimming Pools: Coordination of Architects &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors &amp; Building Trade Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Engineers &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>The Importance of the International Building Code (IBC) in the Design and Construction of Safe Buildings</b>	This three-hour webcast gives participants an introduction to the International Building Code (IBC), which is a model building code developed by the International Code Council (ICC). The IBC Codes provide minimum safeguards for people with regard to building safety. Focus will be on the importance of the code in regard to fire prevention, ingress/egress, and structural stability. Discussions will also include additional codes (e.g., International Plumbing Code) that when referenced by the IBC are adopted, as well. This webcast distills the IBC down to relevant code sections, chapters, and working examples that illustrate fundamental code concepts.	3	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental
<b>The Sustainable Site Design Process</b>	Sustainable site design is a creative and analytical process of information gathering, investigation, and composition that utilizes art and science to connect natural and built systems in a mutually beneficial way. Design outcomes are not inherently sustainable and should not be assumed just because a site is made up of vegetation, soil, and other natural components. Like all successful aspects of a project, sustainability must be intentional and nurtured. By infusing sustainability into all aspects of the design, it becomes an interwoven and inseparable component that is vital to the project's overall success. Traditional design processes and team interactions do not always support sustainable outcomes. To help overcome this issue, this course will cover an integrated design process designers can use which encourages the collaborative efforts of a project team and the utilization of the technical expertise of other professions to broaden the team's awareness of the range of possible design solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>The Ultimate Project Manager, Chapter 01: Today's Project Manager</b>	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 02: Marketing And Proposals</b>	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 03: The Contract Agreement</b>	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 04: The Project Management Plan</b>	The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 05: The Project Schedule</b>	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 06: The Project Budget</b>	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 07: Leading The Project Team</b>	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
<b>The Ultimate Project Manager, Chapter 08: Managing Client Relationships</b>	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 09: Developing Effective Communications</b>	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Chapter 10: The Project Startup</b>	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 11: Managing Your Time</b>	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports</b>	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases</b>	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
<b>The Ultimate Project Manager, Chapter 14: Managing Project Quality</b>	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
<b>The Ultimate Project Manager, Chapter 15: Managing Project Risks</b>	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
<b>The Ultimate Project Manager, Chapter 16: Project Financial Management</b>	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs. In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 17: Project Management And Design Technology</b>	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project</b>	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 19: Project Closeout</b>	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods</b>	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate



## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data</b>	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>Transit-Oriented Development</b>	This webcast introduces the concept of Transit Oriented Development (TOD), which is a walkable, high-density, compact, mixed-use form of development typically focused within close proximity of a transit station. The course focuses on TOD social, economic, and environmental implications in terms of transit ridership, property values, congestion relief, pollution reduction, community place making, and other aspects of transportation and urban policy. This course also addresses potential negative consequences of TOD including trampling neighborhood character, gentrification, and increasing urban sprawl and concludes with snapshots of successful TOD case studies.	2	Fundamental
<b>Transportation Engineering: Highway Capacity</b>	Highway accidents result in thousands of deaths a year. Knowing how highway capacity analysis is used in the design of safe and efficient roadway facilities is essential to the health safety and welfare of the general population. This interactive online course will teach you about the fundamental concepts of highway capacity analysis. You will learn about transportation system elements, types of roadway facilities, design vehicles, the concept of level-of-service, traffic volume parameters, and speed parameters and how they are relevant in analyzing the capacity of roadway facilities.	2	Fundamental
<b>Transportation Engineering: Introduction to Transportation, Planning, and Funding</b>	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental
<b>Transportation Engineering: Mass Transportation</b>	Mass transportation (or public transportation) is any form or shared-passenger transportation service available for use by the general public. The types (or modes) of mass transportation include airline service, bus (commonly referred to as transit or transit service in the United States), paratransit (van service), light rail (also known as tram), commuter rail, heavy rail, ferries, as well as other modes such as motorized tricycles (often referred to as auto rickshaws) that are common and widely used in mostly developing and emerging economies. New and innovative modes of mass of transportation include Maglev trains. The focus of this interactive online course will be on modes of mass transportation and mass transportation systems common within the United States, in particular transit, paratransit, light rail, commuter rail, and heavy rail.	2	Intermediate
<b>Understanding Concrete's Environmental Advantage</b>	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental
<b>Understanding Fire Sprinkler Drawings and Calculations</b>	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
<b>Understanding the Energy Independence and Security Act</b>	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - StormWater Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
<b>Unreinforced Masonry Design</b>	How is unreinforced masonry used in construction? This interactive online course will focus on unreinforced masonry design and how the use of this design method is employed every day for buildings, foundations, and interior partitions. Unreinforced masonry is often used for building foundations and exterior walls, for fire separation walls on building interiors and used where compressive resistance to loads is required. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
Urban Sprawl Laws	The social, environmental, and economic state of our communities, as well as the health of our population, is affected by our urban environment. Historically, the central objective of planning laws and land use regulations was to safeguard negative consequences associated with the built environment. Concern about rapidly developing urban regions has prompted state legislatures to pass planning laws to manage urban development. This interactive online course will focus on traditional growth management regulations and development restrictions employed in the local, regional, and state policy-making arenas. This course will also discuss a new approach heralded by California in Senate Bill 375 that focuses on regulating air quality standards through land development patterns. The types and functions of both traditional and new planning reform laws are the focus of this course.	2	Fundamental
Use of Steel in Design & Construction	This 1-hour interactive online course discusses the use of steel in design and construction, with the primary focus of the design segment relating to design of buildings, and not entailing design of the myriad of other things in modern society that are made from steel. We will start with a look at the methods of manufacturing various types of steel. The resultant physical characteristics of different types of steel will be examined to understand those applications where the use of different steel is recommended. Techniques for proper use and erection of steel in buildings will be discussed, in conjunction with design considerations. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Virginia 2017 NEC 3 Hour CE Program #1	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #2		3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #3	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
Virginia 2017 NEC 3 Hour CE Program #4	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate
Walkable Communities	You can be a leader in the growing trend of communities that support more social interaction, physical fitness, and diminished crime and social problems. You can develop economically and naturally sustainable urban environments that lead to whole, happy, healthy lives for the people who live in them. This webcast gives you the information and tools you'll need to set and reach those goals. You'll learn preferred choices of transportation, street design, and guidelines for developing walkable (non-motorized) communities.	1	Intermediate
Wind Design Using ASCE 7-10	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
Wind Design Using ASCE 7-16	Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard.	2	Intermediate

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 2: Effective Design &amp; Development</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Wood Design Using the 2012 Wood Frame Construction Manual</b>	Knowing the correct wind speed for the area in which you are building a wood frame structure is crucial to the safety of the building's inhabitants. This interactive online course will describe how to use the 2012 version of the American Wood Council's Wood Frame Construction Manual (WFCM). This version incorporates the use of wind speed maps from ASCE 7-10 and the design of both vertical and lateral load paths using the WFCM. There are many nuances to the correct use of this manual and many of these will be covered to help the practitioner correctly use this document that is referenced in the International Building and Residential Codes.	3	Intermediate
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental

## Architecture & Design (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental

# Construction Project Management

Title	Description	Hours	Level
<b>A Better Construction Contract</b>	This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed. A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>A Manager's Guide to Performance Appraisals</b>	This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements, Descriptions and Evaluation of Competencies, Self Assessment and more. There is a test included at the end of this course.	1	Intermediate
<b>ADA Compliance in Business</b>	The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities.	1.25	Intermediate
<b>Advanced Management Skills</b>	In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand.	5	Intermediate
<b>Advanced Project Management: Advanced Project Risk Management</b>	Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control.	2	Advanced
<b>Advanced Project Management: Advanced Project Scheduling</b>	Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model.	1	Advanced
<b>Advanced Project Management: Converting Strategy Into Action</b>	All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives.	1	Advanced
<b>Advanced Project Management: Executing Complex Programs</b>	In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs.	1	Advanced
<b>Advanced Project Management: Integrated Project Delivery</b>	Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charrette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems	2	Advanced

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Advanced Project Management: Managing Project Teams</b>	Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team.	1	Advanced
<b>Advanced Project Management: Project Management in a Dynamic Environment</b>	This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects.	1	Advanced
<b>Advanced Project Management: Project Performance Management</b>	To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects.	1	Advanced
<b>Advanced Project Management: Sustainability in Project Management</b>	Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas.	2	Advanced
<b>Advanced Project Management: The Power of Project Leadership</b>	This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders.	1	Advanced
<b>Appraising Performance</b>	Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment.	3.5	Intermediate
<b>Basics of Leadership: 01-Leadership Challenges</b>	Leaders in the 21st century must accommodate themselves to today's rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 02-Changes in Corporate Culture</b>	A company's organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 03-Keeping Employees Energized</b>	Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3.	1	Intermediate
<b>Basics of Leadership: 04-Knowledge Management</b>	Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in today's workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 05-Elements of Change in Business</b>	Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why it's essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 06-Leadership Dynamics</b>	Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series.	1	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Better Business Writing</b>	Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world.	0.75	Intermediate
<b>Business Communication Fundamentals</b>	In the business world, effective communication is an essential part of getting things done - specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them - what to include and what not to include - for that's what dictates how well we communicate.	0.75	Intermediate
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Business Execution: 01-Execution Strategies</b>	Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go.	1.5	Intermediate
<b>Business Execution: 02-Inspiring Workplace Excellence</b>	When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees.	1	Intermediate
<b>Business Execution: 03-Turning Ideas into Actions</b>	There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure.	1.5	Intermediate
<b>Coaching with Confidence</b>	LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be - for themselves, and for their teams.	6.5	Intermediate
<b>Construction Project Management: Construction Practices and Systematic Project Management</b>	In this course, we're going to present and discuss the management of field construction projects. We'll also cover management techniques for controlling cost, time, resources, and project finance during the construction process. Emphasis is placed on practical and applied procedures that have been proven effective. Effective management of a project also requires a considerable background of general knowledge about the construction industry. This interactive online course will familiarize you with certain fundamentals of construction practice. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Managing Time</b>	Did you know the schedule plays a central role in construction project management? Developing an initial schedule is a powerful tool that you can use in managing various aspects of a project, including time, resources, production, and cost. This interactive online course concentrates on using the schedule to manage the time required to execute the construction processes. It begins by considering the project as a whole, determining how to shorten the overall project schedule, and looking at the cost trade-offs of expediting the project. It then focuses on current or upcoming parts of the project with the objective of managing the project components more effectively. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Production Planning</b>	Did you know production planning begins well before the project is mobilized in the field and continues throughout the project until all field operations are closed out? Production planning is concerned with how project activities are going to be carried out. It establishes the methods to be used, the assignment of personnel, the movement of material to the workface, and the process of assembling the pieces. This interactive online course considers all resources that contribute to the job, including personnel, materials, construction equipment, the site, the environment, and anything else that might affect the job. It will also cover the lean construction process and BIM, which is beginning to change the way construction is managed and organized. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Coordination</b>	Progress reporting provides the opportunity to analyze the current status of the project. Often, this will lead to rescheduling and corrective action to bring the project back within specified time parameters. This cycle of planning and executing activities, measuring and reporting progress, revising the plan based on current status, and updating the schedule is continued repetitively throughout the project. In this interactive, online course, we'll focus on managing the ongoing project. We begin by looking at detailed schedules used by the field supervisor to plan crew work on specific activities in the near term. Then we move on to measurement and reporting of progress.	2	Intermediate
<b>Construction Project Management: Project Cost System</b>	Did you know that managing cost for a construction project is equally important as managing time? It allows you to make decisions that will enable you to maximize resources. This interactive online course covers the various elements of the project cost cycle, starting with the estimate and moving through the project to collection of actual unit costs to be incorporated into the company cost database for use in starting the cycle again for a future project. We will also review the relationship between time and money. Although the details of a specific cost-control system vary substantially from one construction firm to another, the ensuing treatment can be regarded as being reasonably typical of current practice within the construction industry.	2	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Construction Project Management: Project Estimating</b>	If you were given the task of estimating the future expense of a unit of production in a manufacturing facility you could do it with considerable precision. A plant offers standard conditions, close controls, and consistent processes. Construction estimating, on the other hand, lacks standardization, presents challenging site locations and project conditions. Nevertheless, a skilled and experienced estimator, using cost accounting information gathered from similar previous construction projects, can do a reasonable job of predicting construction costs. The character or location of a project can present unique problems, but there are usually some basic principles and precedents that apply. This interactive online course will walk you through the steps involved in estimating construction projects starting with an overview of cost-estimating procedures and how the final project budget is reached. Then, you'll learn how to develop monthly progress estimates and change order estimates. Finally, you'll become familiar with details about specific estimates that you'll typically prepare. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Financial Management</b>	Did you know the project manager bears the overall responsibility for financial management of the work on a construction project? This includes carrying out such fiscal duties as may be imposed by the construction contract and implementing appropriate monetary procedures according to the dictates of good business practice. Project financial management can involve a broad range of responsibilities. This interactive online course covers project cost breakdowns, the forecasted schedule of progress payments, preparation or approval of periodic pay estimates, and documentation required for final payment. You will also learn how to monitor project cash requirements during the contract period and maintain complete and detailed daily records of the project.	1	Intermediate
<b>Construction Project Management: Project Planning</b>	Project planning is central to project management and takes place at all stages. The plan is typically very simple in concept, though it may be quite complex in execution. Additional participants in the process, such as designers, contractors, specialty contractors, and material suppliers also plan for a project. Their plans often include much greater detail but are limited in scope in order to execute their part of the project. Project planning is essential to any task, whether it be management oriented or focused on execution in the field. The product of the plan is often a schedule. In this course, you will see that the planning process, resulting in the project schedule, is what ties all of the elements of project management together. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Scheduling Applications</b>	In previous courses in this series, we focused more on tactical use of the schedule to manage specific components of the project, such as production, time, resources, and costs. In this interactive, online course, we'll consider strategic scheduling applications as they relate to the overall project, including legal aspects of the schedule. This course considers the role of the schedule and the variety of operational schedules available to the project manager. It also discusses the ways scheduling information can be organized and presented.	2	Intermediate
<b>Construction Project Management: Project Scheduling Concepts</b>	How would you account for weather delays in a construction project schedule? What about the availability of labor and equipment? How much time should you allow for each subcontractor to complete their work? In this interactive online course, we'll answer those questions. You'll learn how to determine the duration for individual activities and the calculation process for project times. Through examples, you'll discover new terminology for scheduling, including early and late start and finish, float, critical activities, and lag time. You'll then convert the project days-based schedule into calendar dates. We'll also discuss the pros and cons of the bar chart in construction project scheduling and how computer applications can save time and provide an array of project data in various forms. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Resource Management</b>	Much of the job of a project manager, as well as the job of a field supervisor, focuses on the efficient investment of resources to achieve the project objectives. A resource can be considered anything that adds value to the project. When we talk of resources in the context of construction, we typically think of manpower, equipment, and materials. In addition to what we normally understand manpower to mean—that is, craft workers who actually do the work on the project—there are many other people who add value to the project. It is the job of the project manager to manage all of these resources in support of efficient execution of the project. This interactive, online course will focus on methods and procedures involved with the management of the three primary resources of manpower, equipment, and materials.	1	Intermediate
<b>Effective Delegation</b>	LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them.	3	Intermediate
<b>Effective Presentation Skills</b>	In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation.	1	Intermediate
<b>Email Etiquette</b>	Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication.	2.5	Intermediate
<b>Facilitating Meetings and Groups</b>	LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals.	7	Intermediate
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate



## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 1: Foundations of Management</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, and great expertise within each area. The leader who has excelled while dealing directly with projects and design issues must now learn to deal indirectly with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the first chapter of the From Project Manager to Principal course series, and explores the tools each business person needs to develop into a successful manager. Concepts such as transitioning from project developer to a management position, behavior changes, self evaluation and leadership qualities are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 2: Marketing Your Services</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the second chapter of the From Project Manager to Principal course series. The focus of this course is the importance of marketing to project management and the overall success of your business. The material presented will help you better understand the project manager's role in creating winning proposals and successfully marketing your services. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>From Project Manager to Principal 3: Negotiation Outcomes &amp; Strategies</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the third chapter of the From Project Manager to Principal course series. This course explores the art of negotiation between a firm and a client and the vital role that project managers play in the discussion process. Key concepts such as negotiation strategies, scope, and compromise are presented to help you better understand how to reach a mutually beneficial agreement with your clients. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 4 &amp; 5: Manpower &amp; Quality</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course covers the fourth and fifth chapters of the From Project Manager to Principal course series, and it begins with a look at creating your work force. Important strategies for hiring, interviewing and managing your employees are presented. The course concludes by discussing the importance of quality management and outlines how to create an effective quality control program. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>From Project Manager to Principal 6: Financial Management</b>	The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the sixth and final chapter of the From Project Manager to Principal course series. This course looks at the financial responsibilities of the project manager. Topics such as choosing the appropriate accounting method and improving cash flow are presented. The course also includes an in depth look at over 100 ways to cut overhead costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fundamentals of Business Crisis Management</b>	In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan.	2.5	Intermediate
<b>Management 101: 01-Introduction to Management</b>	You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager.	1	Intermediate
<b>Management 101: 02-Leading and Communicating as a Manager</b>	Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting.	1	Intermediate
<b>Management 101: 03-Making an Impact as a Manager</b>	Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact.	1	Intermediate
<b>Management 101: 04-Taking Control as a Manager</b>	Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department.	1	Intermediate
<b>Managing Contractors and Temporary Employees</b>	In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department.	3.25	Intermediate
<b>Managing Generation X</b>	You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers.	1	Intermediate

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Title	Description	Hours	Level
<b>Multigeneration Management: 01-Workforce Generations</b>	At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace.	1	Intermediate
<b>Multigeneration Management: 02-Leading Silents and Boomers</b>	For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities.	1.5	Intermediate
<b>Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next)</b>	Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series.	1.25	Intermediate
<b>Multigeneration Management: 04-Cross-Generational Teams</b>	Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course.	1	Intermediate
<b>Multigeneration Management: 05-Developing Generations</b>	When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course.	1	Intermediate
<b>Negativity in the Workplace</b>	In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome.	4	Intermediate
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Performance Management: 01-Preventing Performance Problems</b>	The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out You'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 02-Identifying Performance Problems and Causes</b>	Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 03-Feedback and Counseling</b>	The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 04-Effectively Disciplining Problem Performance</b>	Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate
PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate
PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate
PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate
PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
PMBOK® Guide - Sixth Edition: 12-Controlling Costs	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 13-Estimating &amp; Budgeting Project Costs</b>	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 14-Project Quality Planning</b>	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control</b>	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources</b>	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources</b>	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications</b>	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bidder conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Pricing as a Professional</b>	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Risk Management</b>	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Project Team Management</b>	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Rewarding Peak Performers</b>	Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the business bottom line.	1.5	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Management: Methods for Motivating and Mentoring Your Team</b>	Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company.	2	Intermediate
<b>Smart Management: Business Essentials</b>	You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind.	2	Intermediate
<b>Smart Management: Coaching for Better Performance</b>	There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan.	1	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Smart Management: Data Security</b>	Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Customer Service</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: How to Handle Workplace Challenges</b>	Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles.	1	Intermediate
<b>Smart Management: Key Skills for Managing &amp; Coaching Your Team</b>	Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself.	0.5	Intermediate
<b>Smart Management: SMART Goals - Setting Effective Targets for Success</b>	Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success.	1	Intermediate
<b>Smart Management: Successfully Transitioning from Team Member to Manager</b>	Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed.	1	Intermediate
<b>Smart Management: The Art &amp; Science of Delegation</b>	Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tells us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects.	1	Intermediate
<b>Successful Hiring</b>	Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview.	1.25	Intermediate
<b>Successful Negotiation</b>	One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, You'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life.	1	Intermediate



## Construction Project Management (Continued)

Title	Description	Hours	Level
Successful Termination	Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee.	1.25	Intermediate
Texas Electrician 4 Hour CE Program #5	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
Texas Electrician 4 Hour CE Program #6	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate
Texas Electrician 4 Hour CE Program #7	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
The Change Process	In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes. This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours.	2.5	Intermediate
The Ultimate Project Manager, Chapter 01: Today's Project Manager	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
The Ultimate Project Manager, Chapter 02: Marketing And Proposals	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 03: The Contract Agreement	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
The Ultimate Project Manager, Chapter 04: The Project Management Plan	The purpose of this course is to provide you with the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
The Ultimate Project Manager, Chapter 05: The Project Schedule	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
The Ultimate Project Manager, Chapter 06: The Project Budget	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
The Ultimate Project Manager, Chapter 07: Leading The Project Team	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
The Ultimate Project Manager, Chapter 08: Managing Client Relationships	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
The Ultimate Project Manager, Chapter 09: Developing Effective Communications	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate
The Ultimate Project Manager, Chapter 10: The Project Startup	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
The Ultimate Project Manager, Chapter 14: Managing Project Quality	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
The Ultimate Project Manager, Chapter 15: Managing Project Risks	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Chapter 16: Project Financial Management</b>	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs. In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 17: Project Management And Design Technology</b>	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project</b>	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 19: Project Closeout</b>	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods</b>	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data</b>	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>Understanding Business Ethics</b>	In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company.	2	Intermediate
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Construction Project Management (Continued)

Title	Description	Hours	Level
<b>Winning Proposals 2: Effective Design &amp; Development</b>	<p>Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	<p>Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	<p>Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental

# IT & Cybersecurity Professional

Title	Description	Hours	Level
<b>AWS Certified Cloud Practitioner</b>	<p>Amazon Web Services is a subsidiary of Amazon. This technology includes cloud storage, computing, networking, database, analytics, application services, customer relationship management (CRM), mobile and developer tools. Amazon Web Services certifications are very common in the IT industry. However, with over 90 distinct services, it is very difficult to know what to even study if preparing for one of the certification exams. In this course, you will learn the foundational cloud computing concepts and AWS services needed to achieve the AWS Certified Cloud Practitioner certification. First, you will learn core concepts about cloud computing and its differences from traditional data centers. Next, you will review the core AWS services that are covered in the exam. Finally, you will review techniques for taking the exam that will improve your overall score. When you have completed this course, you will have the knowledge and skills that you need to successfully complete the AWS Certified Cloud Practitioner exam. In this course, you will learn how to:</p> <ul style="list-style-type: none"> <li>• Define what the AWS Cloud is and the basic global infrastructure</li> <li>• Describe the key services on the AWS platform and their common use cases</li> <li>• Describe basic AWS Cloud architectural principles</li> <li>• Describe basic security and compliance aspects of the AWS platform and the shared security model</li> <li>• Define the billing, account management, and pricing models</li> <li>• Identify sources of documentation or technical assistance (e.g., whitepapers, support tickets)</li> <li>• Describe the AWS Cloud value proposition</li> <li>• Describe basic/core characteristics of deploying and operating in the AWS Cloud</li> </ul> <p>This course is intended for all AWS Solutions Architects, Developers, Admins, Networking, and Big Data Experts, as well as anyone interested in learning and advancing their knowledge in the AWS Platform.</p>	17.25	Intermediate
<b>AWS Intro and Deep Dive</b>	<p>This course introduces students to the AWS Storage Gateway features and the functions of its three modes: File, Volume, and Tape. It teaches students how to create and manage each type of gateway by using the AWS Management Console. In addition, it provides the skills to apply AWS security features to protect access to data in the gateway and in the AWS Cloud. Finally, it teaches users how to monitor gateways for performance and troubleshoot common problems that can arise in the day-to-day operation of a Storage Gateway. This path is designed for enterprise storage engineers to learn how to architect and manage highly available solutions, with a focus on AWS storage services. What will you learn?</p> <ul style="list-style-type: none"> <li>• Define what the AWS Cloud is and the basic global infrastructure</li> <li>• Describe the key services on the AWS platform and their common use cases</li> <li>• Describe basic AWS Cloud architectural principles</li> <li>• Describe the AWS Cloud value proposition</li> <li>• Describe basic/core characteristics of deploying and operating in the AWS Cloud</li> <li>• VPCs and how they play a vital role in the cloud Describe the key services on the AWS platform and their common use cases</li> <li>• An in-depth view of AWS Cloud architectural principles</li> <li>• Discuss the ongoing evolution of resources in the cloud</li> <li>• Describe basic/core characteristics of deploying and operating in the AWS Cloud</li> </ul> <p>Intended Audience: This provides an overview of some of AWS cloud services and basic knowledge of what the services are for the specified objectives. This is intended for Sales, Marketing, Project Managers, and new business professionals learning AWS, as well as IT Professionals who have a working knowledge with AWS. This is designed to teach you some basic concepts of cloud computing.</p>	11.5	Intermediate
<b>Azure 203 Developing Solution</b>	<p>This course prepares you for the Microsoft Certification Exam AZ-203. By the end of this course, you will be able to Develop Azure IaaS computer solution, Develop Azure PaaS computer solution, Develop for Azure storage, Implement Azure security, Monitor, troubleshoot and optimize solutions, as well as connect to and consume Azure and third-party services. You will become proficient in developing apps and services, using Azure tools and technologies. Cloud Technologies are a great skill to learn and having these skills will assist in becoming or adding to your skillset as a Cloud Architect, Cloud DBA, Cloud Admin and many more. Candidates for this exam are Azure Developers who design and build cloud solutions such as applications and services. They participate in all phases of development, from solution design, to development and deployment, to testing and maintenance. They should be proficient in developing apps and services by using Azure tools and technologies, including storage, security, compute, and communications. What will you learn? Learning objectives include Azure Batch Services, Creating Containerized Solutions, Working with Web and Mobile Apps, Azure Functions and more! Students will gain experience working with Azure technologies including but not limited to: Implement batch jobs by using Azure Batch Services Create containerized solutions, create Azure App Service web apps, Create Azure App Service mobile apps, Create Azure App Service API apps, Implement Azure functions, Develop solutions that use storage tables, Develop solutions that use Cosmos DB storage, Develop solutions that use a relational database, Develop solutions that use blob storage Implement authentication, Implement access control, Implement secure data solutions, Develop code to support scalability of apps and services, Integrate caching and content delivery within solutions and instrument solutions to support monitoring and logging.</p>	20	Intermediate
<b>Certified Ethical Hacker (CEH) v10 Ethical Computer Hacking</b>	<p>This highly hands-on course gives participants experience in network and system penetration testing. It covers all of the exam objectives for the ECC 312-50 version 10 exam while taking the learner step-by-step through hacking and exploiting each network and system type. Tools used in the activities are a combination of Windows- and Kali Linux-based, covering a broad range of examples used by ethical hackers.</p>	33	Intermediate
<b>Certified Information Systems Security Professional (CISSP) 2020</b>	<p>The vendor-neutral CISSP certification is the ideal credential for those with proven deep technical and managerial competence, skills, experience, and credibility to design, engineer, implement, and manage their overall information security program to protect organizations from growing sophisticated attacks. Backed by (ISC)², the globally recognized, not-for-profit organization dedicated to advancing the information security field, the CISSP was the first credential in the field of information security to meet the stringent requirements of ISO/IEC Standard 17024. Not only is the CISSP an objective measure of excellence, but also a globally recognized standard of achievement.</p>	20	Intermediate
<b>Cisco 200-301: Cisco Certified Network Associate (CCNA) 2020</b>	<p>This CCNA training is considered associate-level Cisco training, which means it is designed for junior network administrators. This 200-301 CCNA course is valuable for new IT professionals with at least a year of experience with networks and experienced network administrators looking to validate their Cisco skills. After taking this course, the exam tests a candidate's knowledge and skills related to network fundamentals, network access, IP connectivity, IP services, security fundamentals, and automation and programmability. What will you learn? CCNA exam objectives and topics include the following: Routing protocols, including OSPFv2 for IPv4 and OSPFv3 for IPv6 VLANs, STP, and EtherChannel (static, PAGP, and LACP) WAN technologies Quality of service (QoS), including marketing, shaping, and prioritization of voice, video, and data Device monitoring protocols, including SNMPv2 and SNMPv3 Device management using AAA (authentication, authorization, and accounting) with TACACS+ and RADIUS</p>	46.5	Intermediate

## IT & Cybersecurity Professional

Title	Description	Hours	Level
<b>CompTIA A+ 220-1001 (Core 1)</b>	The CompTIA A+ Core Series covers expanded content on growing parts of the IT support role including an expansion of baseline security topics and a different approach to defining competency in operational procedures. CompTIA A+ 220-1001 covers mobile devices, networking technology, hardware, virtualization and cloud computing, and network troubleshooting.	20.75	Intermediate
<b>CompTIA A+ 220-1002 (Core 2)</b>	The CompTIA A+ Core Series covers expanded content on growing parts of the IT support role including an expansion of baseline security topics and a different approach to defining competency in operational procedures. CompTIA A+ 220-1002 covers installing and configuring operating systems, expanded security, software troubleshooting and operational procedures.	16.75	Intermediate
<b>CompTIA Advanced Security Practitioner (CAS-003)</b>	The CompTIA CASP+ training course, Advanced Security Practitioner (CAS-003) course provides advanced-level training in risk management, enterprise security operations and architecture, research and collaboration, and integration of enterprise security. It covers all of the new exam objectives for the CAS-003 exam. The CompTIA CASP+ certification is the highest-level security certification offered by CompTIA and is the final step in achieving the new CompTIA Security Analytics Expert (CSAE) or Security Infrastructure Expert (CSIE) stackable certification.	28	Intermediate
<b>CompTIA Cloud + CVO-002</b>	The CompTIA Cloud+ Certification Training course is designed to provide IT professionals with the knowledge and skills needed to work in a modern datacenter and covers all the objectives required to pass the CompTIA Cloud+ Certification Exam. Cloud-based infrastructure is becoming an invaluable part of an organization's IT systems and provides readily available resources for organizations to select from on a moment's notice. These resources include services that range from pre-installed physical servers all the way up to pre-configured software and allows organizations to choose the level of service that fits their organization's requirements and budget. The CompTIA Cloud+ is a vendor-neutral certification that provides training in all areas necessary for IT professionals to effectively and successfully deploy or migrate their organization to the cloud, utilizing the most efficient service and deployment models, while also managing cost, compliance, and security-relevant to the organization. It also provides a solid foundation for students who want to continue their education with vendor-specific certifications. This course flows through the five CompTIA Cloud+ Certification Exam Objectives; Configuration and Deployment, Security, Maintenance, Management, and Troubleshooting in a logical manner. First, the course covers basic cloud concepts and evaluating existing components and services for migration to the cloud, as well as, planning and preparing for cloud deployment, and implementing and testing a pilot project. Next, it moves into designing a cloud environment based on compliance, security, and identity access management requirements. After that, it covers maintenance, backup, restores, disaster recovery, and business continuity measures. Last, it finishes up with analyzing performance, growth forecasting, and troubleshooting. This course is ideal for IT personnel who focus on infrastructure, those who are interested in becoming cloud practitioners, IT project managers who manage migrations, and IT managers who need a clear understanding of cloud technologies. Analyze system requirements for cloud deployments, plan and prepare for cloud deployments, deploy and test a pilot project, design secure and compliant cloud infrastructure, planning identity and access management, determine resource sizing and storage requirements, analyzing workloads, maintaining cloud systems, implementing backups, disaster recovery, and business continuity plans, analyzing performance, growth forecasting, and troubleshooting. Information technology professionals with two to three years of infrastructure experience and those who are preparing for the Cloud+ certification exam.	14	Intermediate
<b>CompTIA Cloud Essentials + CLO-002</b>	The CompTIA Cloud Essentials+ Certification Training course is designed to provide business analysts and IT professionals with the knowledge and skills needed to make strategic cloud business decisions and covers all the objectives required to pass the CompTIA Cloud Essentials+ Certification Exam. Cloud-based infrastructure is becoming an invaluable part of an organization's IT systems and provides readily available resources for organizations to select from on a moment's notice. These resources include services that range from pre-installed physical servers all the way up to pre-configured software and allows organizations to choose the level of service that fits their organization's requirements and budget. The CompTIA Cloud Essentials+ is a vendor-neutral certification that provides training in all areas necessary for business managers and cloud services managers to successfully make business decisions regarding which cloud service provider(s) to use, which operations to migrate to the cloud, and when to migrate. It also provides knowledge for effectively evaluating the financial and operational impacts of cloud migrations. This course flows through the four CompTIA Cloud Essentials+ Certification Exam Objectives; Cloud Concepts, Business Principles of Cloud Environments, Management, and Technical Operations, and Governance, Risk, Compliance, and Security for the cloud, in a logical manner where each topic will build on top of the knowledge you learned in the previous one. This course is ideal for business analysts, IT managers, and project managers who are responsible for cloud deployments, and technical sales specialists who sell cloud services. It also provides a solid foundation for IT professionals who want to continue on to complete the Cloud+ Certification. Understanding cloud computing concepts, applying cloud business principles, advising a cloud design and migration, aspects of operating in the cloud, and managing cloud governance. Business analysts, cloud services managers, technical sales specialists, and students who want to move on to the CompTIA Cloud+ Certification	10	Intermediate
<b>CompTIA CV0-001: CompTIA Cloud +</b>	The CompTIA Cloud+ certification validates the knowledge and best practices required of IT practitioners working in cloud computing environments, who must understand and deliver cloud infrastructure. Recommended experience includes at least 24-36 months of work experience in IT networking, storage, or data center administration, and familiarity with any major hypervisor technologies for server virtualization	10	Intermediate
<b>CompTIA Cybersecurity Analyst (CySA+)</b>	Cybersecurity certification is one of the hottest IT related certifications. The CompTIA Cybersecurity Analyst, also known as CompTIA CySA+, is a CompTIA certification. CySA+ is focused on the knowledge and skills required to perform the following:	18	Intermediate

## IT & Cybersecurity Professional

Title	Description	Hours	Level
<b>CompTIA CySA+ Cybersecurity Analyst CS0-002</b>	This IT workforce certification course taught by John Abueg covers applied behavioral analytics to networks and devices with the intentions to prevent, detect, and combat cybersecurity threats via continuous security monitoring. The CySA Plus certification, earned after passing the CS0-002 exam, validates an IT professional's ability to proactively defend and continuously improve the security of an organization. The course is intended for Security analysts at a Tier II level, Intermediate/mid-career cybersecurity specialists, Students holding a DoD IAT Level II or CSSP position, Network+ or Security+ certification holders wanting to take that next step, or anyone else wanting to expand their skillset and knowledge. As attackers have learned to evade traditional signature-based solutions such as firewalls and anti-virus software, an analytics-based approach within the IT security industry is increasingly important for organizations. Behavioral analytics in regards to networks helps to improve the overall state of security through identifying and combating malware and advanced persistent threats (APTs), resulting in enhanced threat visibility across a broad attack surface. The CompTIA Cybersecurity Analyst (CySA+) certification verifies that successful candidates have the knowledge and skills required to leverage intelligence and threat detection techniques, analyze and interpret data, identify and address vulnerabilities, suggest preventative measures, and effectively respond to and recover from incidents. You will learn to leverage intelligence, and threat detection techniques, to analyze and interpret data, to identify and address vulnerabilities, to suggest preventative measures, and to effectively respond to and recover from incidents. CompTIA CySA+ meets the ISO 17024 standard and is approved by the U.S. Department of Defense to fulfill Directive 8570.01-M requirements. It is compliant with government regulations under the Federal Information Security Management Act (FISMA). Regulators and governments rely on ANSI accreditation because it provides confidence and trust in the outputs of an accredited program. Over 2.3 million CompTIA ISO/ANSI-accredited exams have been delivered since January 1, 2011. This course reviews topics for the CS0-002 version of the CySA+ exam, which became the only version available as of October 22, 2020. It does	14.5	Intermediate
<b>CompTIA Linux + XK0-004</b>	Those seeking IT career advancement with Linux system administration/operations should take this Linux+ certification prep course in pursuit of passing the XK0-004 exam. This course is designed for IT professionals whose primary job responsibility is the management of servers and other devices running the Linux operating system. This Linux Plus course is taught by Frank Schmidt and it is recommend students complete A+, Network+ and Security+ before starting this training. For many years, Linux has dominated the server install base in the business world—and it will continue to do so in the foreseeable future, especially as we transition to the Cloud. This courseware builds on your existing experience with systems operations and administration to provide you with the knowledge and skills required to configure, manage, operate, and troubleshoot a Linux environment by using security best practices, scripting, and automation computing models. The popularity of Linux has led to a greater need for information technology (IT) professionals who can manage servers that run some form of the Linux kernel and the associated GNU tools that make a Linux distribution. What you will learn: <ul style="list-style-type: none"> <li>• Perform basic Linux tasks.</li> <li>• Manage users and groups.</li> <li>• Manage permissions and ownership.</li> <li>• Manage storage. Manage files and directories.</li> <li>• Manage kernel modules.</li> <li>• Manage the Linux boot process.</li> <li>• Manage system components.</li> </ul>	24.5	Intermediate
<b>CompTIA LX0-101 &amp; LX0-102: CompTIA Linux +</b>	The CompTIA Linux+ Certification is a junior level certification for Linux administrators. Students should be able to perform maintenance tasks with the command line, install and configure a workstation, and be able to configure a basic network.	16.5	Intermediate
<b>CompTIA Network+ N10-007</b>	CompTIA Network+ helps students develop a career in IT infrastructure covering troubleshooting, configuring, and managing networks. It covers all exam (N10-007) objectives and additional topics that provide background and context. Demonstrations and instructor commentary throughout the course come from real-world experience. Included are examples and tips that the network professional can use in a production network environment. This course is ideal for an individual developing a career in an IT infrastructure group. What will you learn? During this network course, you will learn concepts that cover troubleshooting, network management, installation, and configuration of networks. Specifically, in this course, you will learn the following: Describe networking concepts Explain the function and installation of network infrastructure components Describe network operations concepts and implementation Describe network security concepts and implementation Explain network troubleshooting techniques and tool usage	26	Intermediate
<b>CompTIA PenTest+ (PT0-001)</b>	Learn penetration testing with the CompTIA PenTest+ (PT0-001) course. This highly hands-on course gives participants experience in network and system penetration testing. It covers all of the exam objectives for the CompTIA PenTest+ PT0-001 exam. Also included is an extensive step-by-step 47 page Lab Setup Guide that details every aspect of setting up a virtual environment so you can practice all aspects of this training course. We believe this is one of the most comprehensive courses covering penetration testing available anywhere.	26	Intermediate
<b>CompTIA Security + Certification Course SY0-501</b>	The CompTIA Security+ SY0-501 certification course helps students develop their competencies in topics such as threats, vulnerabilities, and attacks, system security, network infrastructure, access control, cryptography, risk management, and organizational security so that they will successfully pass the Security Plus certification exam. This CompTIA Security+ course will cover security concerns from both a professional setting and on a personal level. This gives students who do not plan to apply their certificate in the immediate future the benefit of keeping up to date on the latest security practices and techniques that they can follow to keep themselves secure in a digital world. Each of the modules of this course is designed to align with the official objectives of this certification and expand past the scope of the certification to allow for real-life application. They give the student some real-life examples of various attacks or security practices that they can both apply in real life or use to further their understanding of a course objective. For complete details on this certification, visit the CompTIA website. Individuals accomplishing this certification are often Systems Administrators, Network Administrators, Security Engineers, IT Auditors and more.	21	Intermediate
<b>Developing MS Azure &amp; Web Services (70-487)</b>	This course will help students prepare for Developing Microsoft Azure and Web Services certification. The 70-487 Certification is intended for developers with 3 to 5 years experience in web services development and a minimum of one year in Web API and Azure Solutions experience.	15.5	Intermediate
<b>Introduction to Python</b>	Python is developed under an OSI-approved open source license, making it freely usable and distributable, even for commercial use. Python is a general-purpose programming language. Created nearly 30 years ago, it is now one of the most popular languages out there to use. Its popularity is particularly important in the data science and machine learning fields. But it is also a language that is easy to learn, and that is why it has become the language most taught in universities.	9	Intermediate

## IT & Cybersecurity Professional

Title	Description	Hours	Level
<b>Microsoft 70-697 Configuring Windows Devices (Windows 10)</b>	<p>This course will prepare you for the 70-697 exam from Microsoft. The 70-697 exam validates a candidate's fundamental knowledge and skills for building solid identities, protection of content (data loss protection), mobile device management policy, virtualization with Hyper-V, application management using the Company Portal and the Windows Store. Candidates will be evaluated on Windows 10 security and integrated Azure features. In this course you will update your skills in the following areas:</p> <ul style="list-style-type: none"> <li>Manage identity in Windows 10</li> <li>Plan Windows 10 desktop and device deployment</li> <li>Plan and implement a Microsoft 365 solution</li> <li>Configure Windows 10 networking</li> <li>Configure Windows 10 storage</li> <li>Manage data access and protection</li> <li>Manage remote access</li> <li>Manage apps</li> <li>Manage updates and recovery</li> </ul> <p>This course is intended for Windows device support technicians or Windows Device System Administrators who are responsible for building solid identities, protection of content (data loss protection), mobile device management policy, virtualization with Hyper-V, and application management using the Company Portal or the Microsoft Store. You should already have experience with Windows desktop administration, maintenance, troubleshooting, Windows 10 security, and integrated Azure features. You should also have a basic understanding of Windows networking technologies, Active Directory, and Microsoft Intune.</p>	32.5	Intermediate
<b>Microsoft 70-740 Installation, Storage &amp; Compute with Windows Server 2016</b>	<p>Installation, Storage and Compute is the first of a series of courses and exams designed to achieve the MCSA certification in Windows Server 2016. We will cover installation of Windows Server through standard manual means and image based installations discussing various requirements and different versions. In addition we will cover the multiple administrative tools that are available. Windows Server 2016 supports several types of storage and introduces new features and enhancements to features such as Storage Spaces and Data Deduplication. We will also discuss the connections of Windows Server 2016 physical and virtual machines to iSCSI and Fibre Channel SANs. Hyper-V, the virtualization platform in Windows Server 2016, has undergone various changes and enhancements such as PowerShell Direct, Nested Virtualization, and Shielded virtualization which will be discussed along with general configuration and management of virtual machines. We will also cover a new style of virtualization possible in Windows Server 2016 known as Containers. We will consider and configure various types high availability and disaster recovery that are available in Windows. In addition we will discuss the importance of patch management and monitoring and the various tools that are available in order to ensure the ongoing efficiency of Windows Server 2016. Instructor - Patrick Loner</p>	21.5	Intermediate
<b>Microsoft 70-741 MCSA Networking with Windows Server 2016</b>	<p>Networking with Windows Server 2016 is the 2nd course in the MCSA certification for Windows Server 2016. This course will cover all the major aspects of a network running this operating system. From planning and implementing IPv4 and IPv6 addressing schemes, troubleshooting client and server connectivity to name resolution with the Domain Name System and assignment of IP addresses using Dynamic Host Configuration Protocol. This course also covers various types of remote access capabilities that are supported in Windows Server 2016 such as Virtual Private Networks, the Web Application Proxy and the DirectAccess alternative to remote access. We will also cover options that are available to optimize branch office scenarios such as BranchCache, Read Only Domain Controllers, and the Distributed File System. Additionally we will cover advanced networking features which are new and improved in Windows Server 2016.</p>	21.25	Intermediate
<b>Microsoft 70-742 Identity in Windows Server 2016</b>	<p>Identity in Windows Server 2016 is the 3rd course towards the MCSA 2016 certification. This course covers Active Directory Domain services the primary identity management platform for Windows Networks. Learn how to deploy domain controllers, manage various Active Directory objects, secure your network and manage it centrally using Group Policy. You will also learn how to connect your internal Active Directory to cloud based solutions such as Office 365 and Azure AD along with the establishment of complex AD DS internal infrastructures. Instructor - Patrick Loner</p>	0	Intermediate
<b>Microsoft 70-764 Administering a SQL Database Infrastructure</b>	<p>Preparation for Microsoft Certification Exam 70-764. By the end of this course, you will be able to administer a Microsoft SQL 2016 server. This course is intended for IT professionals responsible for installing and maintaining a Microsoft SQL Server environment. Instructor: Chrys Thorsen</p>	21.25	Intermediate
<b>Microsoft 70-765 Provisioning SQL Database</b>	<p>This course prepares you for Microsoft Certification Exam 70-765. By the end of this course, you will be able to provision databases on Microsoft SQL Server 2016 and Microsoft Azure. This course is intended for IT professionals responsible for installing and maintaining a Microsoft SQL Server environment. Instructor: Chrys Thorsen</p>	22.5	Intermediate
<b>Microsoft AZ-900 Microsoft Azure Fundamentals</b>	<p>Learn to use Azure, Microsoft's cloud solution. In this day and age, cloud computing is almost a necessity. With more businesses switching over to the Cloud, it is more important than ever to learn about Azure. Understanding how the Cloud works and operates will further your career and help you become more marketable. With this course, you will learn what the Cloud is, different ways to utilize the Cloud, and a variety of the resources that are available in the Azure console. In this course, we will go over several different modules.</p>	8.25	Intermediate
<b>Microsoft Windows 10 Power User (How to use Windows 10)</b>	<p>This course is designed to help you learn the basics of navigating the new Windows 10 operating system so that you can be effective and efficient while at work or play. Topics covered include: using file explorer, operating the new Microsoft Edge, using applications, managing and maintaining accounts.</p>	6.25	Intermediate
<b>Oracle 12c OCP 1Z0-061: SQL Fundamentals</b>	<p>With Oracle Database 12c: SQL Fundamentals, you experience the benefits of an Oracle Database that is re-engineered for Cloud computing. Multitenant architecture brings enterprises unprecedented hardware and software efficiencies, performance and manageability benefits, and fast and efficient Cloud provisioning. Oracle Database 12c: SQL Fundamentals certifications emphasize the full set of skills that DBAs need in today's competitive marketplace.</p>	16	Intermediate
<b>Oracle 12c OCP 1Z0-062: Installation Administration</b>	<p>Keeping your exams current is important to any IT professional. The Oracle 1Z0-062 certification exam will prepare you for your Oracle Database 12c Installation and Administrator Professional certification with ease.</p>	19	Intermediate



## IT & Cybersecurity Professional

Title	Description	Hours	Level
<b>Oracle Database 11g Certified Associate (OCA) Fundamentals 1Z0-051 and Admin 1Z0-052</b>	<p>This course is in preparation for the The Oracle Database 11g Administrator (OCA 11g) certification exam. The Oracle Database 11g Administrator Certification (OCA 11g) ensures that database professionals have a strong foundation and expertise in the industry's most advanced database management system, Oracle 11g. Oracle 11g training course will teach students how to install and maintain an Oracle database, how to create an operational database, and how to properly manage the various structures in an effective and efficient manner, including performance monitoring, database security, user management, and backup/recovery techniques. Students will also learn skills required for working with SQL, including how to use the advanced features of SQL in order to query and manipulate data within the database, control privileges at the object and system level, and use advanced querying and reporting techniques. After completing Oracle OCA 11g course, students will gain a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Oracle databases are the one of the most popular database platforms in the world. Increase your skills and marketability today by achieving Oracle certification!</p>	7.5	Intermediate

## Professional Development

Title	Description	Hours	Level
<b>3-way Communication</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>A Leaders Guide to Decision Making</b>	Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course.	0.5	Intermediate
<b>A Manager's Guide to Performance Appraisals</b>	This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements, Descriptions and Evaluation of Competencies, Self Assessment and more. There is a test included at the end of this course.	1	Intermediate
<b>Access 2013: 01-Working with Databases in Access 2013</b>	Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013</b>	Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series.	2.25	Intermediate
<b>Access 2013: 03-Working with Forms in Access 2013</b>	Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 04-Working with Queries in Access 2013</b>	Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 05-Sharing and Protecting Your Data in Access 2013</b>	Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series.	2	Intermediate
<b>Active Shooter and Other Acts of Targeted Violence</b>	Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders.	1	Fundamental
<b>Active Shooter Response</b>	An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers.	0.25	Intermediate
<b>ADA Compliance in Business</b>	The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities.	1.25	Intermediate
<b>Adobe Acrobat DC Essentials</b>	Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this Uniquely Engaging™ course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions.	3	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
Adult Learning	People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process.	0.25	Intermediate
Advanced Management Skills	In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand.	5	Intermediate
AEC Success: 7 Steps for Using LinkedIn® Effectively	LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups.	0.5	Fundamental
AEC Success: Business Development and Sales	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
AEC Success: Conflict Resolution in the Workplace	Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations.	1	Fundamental
AEC Success: Designing Presentation Visual Aids	Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids.	0.5	Fundamental
AEC Success: Effective Decision Making	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
AEC Success: Five Steps to Effective E-mail Management	Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails.	0.5	Fundamental
AEC Success: How to Become a Top-Notch Industry Leader	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
AEC Success: How to Communicate and Present Effectively	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental
AEC Success: How to Create a Focused, Productive and Low Stress Career and Life	Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus.	0.5	Fundamental
AEC Success: How to Find and/or Become a Mentor	A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship.	0.5	Fundamental
AEC Success: Improving Organization and Productivity	In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management.	0.5	Fundamental
AEC Success: Networking and Relationship Building	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
AEC Success: Obtaining the Right Credentials in Your Career	Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever.	0.5	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>AEC Success: Strategies for a Successful Interview</b>	We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you stand out amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine!	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>An Effective Leader's Guide to Time Management</b>	Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes.	0.5	Intermediate
<b>An Entrepreneur's Guide to Networking</b>	Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'.	0.5	Intermediate
<b>Anti-Harassment Training for All Employees - California</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	1	Intermediate
<b>Anti-Harassment Training for All Employees - Maine</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine.	1	Intermediate
<b>Anti-Harassment Training for All Employees - New York City and State</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City.	1.5	Intermediate
<b>Anti-Harassment Training for All Employees - Non-State Specific</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL	1	Intermediate
<b>Anti-Harassment Training for Supervisors and Managers - California</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	2	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Anti-Harassment Training for Supervisors and Managers - Connecticut</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - New York City and State</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City.	1	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Non-State Specific</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state.	1	Fundamental
<b>Appraising Performance</b>	Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment.	3.5	Intermediate
<b>"Are You Ready?" Checklist</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Are You Ready? Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Basic Business Finance</b>	Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business.	1	Fundamental
<b>Basics of Leadership: 01-Leadership Challenges</b>	Leaders in the 21st century must accommodate themselves to today's rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 02-Changes in Corporate Culture</b>	A company's organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 03-Keeping Employees Energized</b>	Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3.	1	Intermediate
<b>Basics of Leadership: 04-Knowledge Management</b>	Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in today's workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 05-Elements of Change in Business</b>	Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why it's essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 06-Leadership Dynamics</b>	Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Be Proactive! Inclusion Starts With You</b>	An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace.	0.2	Intermediate
<b>Better Business Writing</b>	Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world.	0.75	Intermediate
<b>Blind Spots: Diversity and Inclusion</b>	Is your biology working against you? This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns.	0.5	Fundamental
<b>Brain Bites - Email Management</b>	From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites - Empathy: The Key to Active Listening</b>	Show that you are actively listening by using empathy. You have probably heard empathy described as feeling someone's pain, but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Let Them Know You're Listening</b>	Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Organizing Your Files</b>	How To Stop Wasting Up To Two Hours Per Day Looking For Information On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites - Sharing a Workspace</b>	Learn to safely share a workspace to keep you and your coworkers healthy The spread of COVID-19 led many offices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Staying Safe Online</b>	Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Time Management</b>	Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Using Windows 10</b>	Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.75	Fundamental
<b>Brain Bites - Writing Effective Emails</b>	Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites: Microsoft Teams Meetings</b>	Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Browser Security Basics</b>	A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices.	0.25	Fundamental
<b>Building Leadership Capability</b>	As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization.	0.5	Intermediate
<b>Business Communication Fundamentals</b>	In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate.	0.75	Intermediate
<b>Business Dining Etiquette</b>	Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal.	0.5	Intermediate
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Business Ethics</b>	Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company.	0.5	Intermediate
<b>Business Ethics: Quick Refresh</b>	Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified.	0.5	Intermediate
<b>Business Execution: 01-Execution Strategies</b>	Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go.	1.5	Intermediate
<b>Business Execution: 02-Inspiring Workplace Excellence</b>	When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees.	1	Intermediate
<b>Business Execution: 03-Turning Ideas into Actions</b>	There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure.	1.5	Intermediate
<b>Cell Phone Use in the Workplace</b>	Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use.	0.5	Intermediate
<b>Change Management</b>	Change is a constant in today's world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes.	0.5	Intermediate
<b>Clear Communication</b>	Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Coaching Job Skills: 01-Determining Training Or Coaching</b>	Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees.	1	Intermediate
<b>Coaching Job Skills: 02-Your Path to Training New Skills</b>	Learn and apply the five-step process for training your team members on new skills.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Coaching Job Skills: 03-Your Path to Coaching Existing Skills</b>	Learn and apply the five-step process for coaching your team members on existing skills.	1	Intermediate
<b>Coaching Job Skills: 04-Mastering Training New Skills</b>	Practice Training New Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 05-Mastering Coaching Existing Skills</b>	Practice Coaching Existing Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 06-Health Check</b>	Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment.	1	Intermediate
<b>Coaching with Confidence</b>	LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams.	6.5	Intermediate
<b>Collaborative Communication: 01-Communicating to Your Manager</b>	Learn the background key concepts to effective communication to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 02-Your Manager's Communication Style</b>	Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager.	1	Intermediate
<b>Collaborative Communication: 03-Your Path to Communicating Up</b>	Learn and apply the five-step process for communicating to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 04-Mastering Communicating Up</b>	Practice Communicating Up in a full scenario situation.	1	Intermediate
<b>Collaborative Communication: 05-Communicating Up Health Check</b>	Test your ability to apply Communicating Up concepts in this skills-based scenario assessment.	1	Intermediate
<b>Communication Skills for Supervisors</b>	Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates.	0.5	Intermediate
<b>Company Layoffs and Downsizing</b>	Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved.	0.75	Intermediate
<b>Conflict Management</b>	When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified.	0.25	Intermediate
<b>Conflict Resolution</b>	Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace.	0.7	Intermediate



## Professional Development (Continued)

Title	Description	Hours	Level
Co-worker Coaching	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Create a Windows App Using Free Tools and No Coding	Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do not have the time to learn a programming language. Those obstacles should not stop us from publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very own Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something!	2.5	Intermediate
Creating a Code of Conduct	Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct.	0.5	Intermediate
Creating Word Templates	Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!	0.5	Fundamental
Critical Thinking and Problem Solving	Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights.	0.6	Intermediate
Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture	With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment.	1	Fundamental
Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning	Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages. In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management.	0.5	Fundamental
Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards	When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data.	0.5	Fundamental
Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks	Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. In this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it.	0.5	Fundamental
Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use	Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data.	0.5	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
Cybersecurity Awareness for Employees: End-User Best Practices	We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses.	0.5	Fundamental
Cybersecurity Awareness for Employees: Security Awareness Essentials	In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks.	0.5	Fundamental
Cybersecurity Awareness for Employees: Social Engineering	Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it.	0.5	Fundamental
Cybersecurity Overview	The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible.	0.25	Fundamental
Decision Making	Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Designing Beautiful Documents	Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents.	0.5	Fundamental
Developing Performance Goals & Standards: 01-The Value of Planning	Experience the importance of planning and developing goals for your team.	1	Intermediate
Developing Performance Goals & Standards: 02-Creating Performance Standards	Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed).	1	Intermediate
Developing Performance Goals & Standards: 03-Your Path to Developing Performance Goals and Standards	Learn and apply the five-step process for setting and discussing team member performance goals.	1	Intermediate
Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards	Practice Developing Performance Goals and Standards in a full scenario situation.	1	Intermediate
Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check	Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment.	1	Intermediate
Developing Your Leadership Style	Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Digital Transformation: Benefits of a Digital Corporate Culture</b>	When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits.	0.2	Intermediate
<b>Digital Transformation: Challenges Organizations Face by Not Embracing Technology</b>	Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges.	0.2	Intermediate
<b>Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations</b>	When integrating digital technology into a business infrastructure, it's important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations.	0.2	Intermediate
<b>Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation</b>	Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication, Productivity, Marketing, Security	0.2	Intermediate
<b>Digital Transformation: Four Steps to Implementing a Digital Transition</b>	Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition it's important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course.	0.2	Intermediate
<b>Digital Transformation: Things to Consider Before Making Changes</b>	All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes.	0.2	Intermediate
<b>Digital Transformation: What is Big Data?</b>	Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries.	0.2	Intermediate
<b>Digital Transformation: What is Blockchain?</b>	Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why it's gaining popularity, and how it's being used in organizations today.	0.2	Intermediate
<b>Digital Transformation: What is Digital Transformation?</b>	Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how it's impacting almost every organization.	0.2	Intermediate
<b>Digital Transformation: What is the Internet of Things?</b>	We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact.	0.2	Intermediate
<b>Disabilities in the Workplace</b>	A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination.	0.5	Intermediate
<b>Discipline</b>	Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Discrimination in the Workplace</b>	100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace.	0.25	Intermediate
<b>Discrimination Prevention</b>	Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination.	0.5	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
Diversity in the Workplace	Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers.	0.25	Intermediate
Effective Delegation	LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them.	3	Intermediate
Effective Delegation: 01-What to Delegate	Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task).	1	Intermediate
Effective Delegation: 02-Issues in Delegating	See and practice the issues that arise in delegation discussions and how to effectively handle them.	1	Intermediate
Effective Delegation: 03-Your Path to Delegating	Learn and apply the five-step process for delegating tasks to members of your team.	1	Intermediate
Effective Delegation: 04-Mastering Delegating	Practice Delegating in a full scenario situation.	1	Intermediate
Effective Delegation: 05-Delegating Health Check	Test your ability to apply Delegating concepts in this skills-based scenario assessment.	1	Intermediate
Effective Discipline: 01-Taking Disciplinary Action	See and rate examples of disciplinary action and understand the importance of designing messages for the team member.	1	Intermediate
Effective Discipline: 02-The Disciplinary Process and Documentation	Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation.	1	Intermediate
Effective Discipline: 03-Responding to Team Member Reactions	Since team members often react negatively to discipline, practice how you will respond in these situations.	1	Intermediate
Effective Discipline: 04-Your Path to Effective Discipline	Learn and apply the five-step process for effectively disciplining a team member.	1	Intermediate
Effective Discipline: 05-Mastering Effective Discipline	Practice Effective Discipline in a full scenario situation.	1	Intermediate
Effective Discipline: 06-Effective Discipline Health Check	Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment.	1	Intermediate
Effective Presentation Skills	In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation.	1	Intermediate
Email and Messaging Safety	Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft.	0.25	Fundamental
Email Basics	Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one.	0.5	Intermediate
Email Etiquette	Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication.	2.5	Intermediate
Employee Discipline	Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Employee or Independent Contractor: The Risk of Misclassification of Employees</b>	A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, etcetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors.	0.5	Fundamental
<b>Energy Management Exercise, and Safety</b>	Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done.	0.5	Intermediate
<b>Essential Skills of Communicating: 01-Empowering Leadership Communication</b>	Utilize an empowering and dynamic communication process to increase team members motivation and commitment.	1	Intermediate
<b>Essential Skills of Communicating: 02-Craft Clear and Concise Messages</b>	Construct and express clear and concise messages in both written and spoken communication.	1	Intermediate
<b>Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member</b>	Deliver messages that address the interests of the listener.	1	Intermediate
<b>Essential Skills of Communicating: 04-Listen To Communicate</b>	Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others.	1	Intermediate
<b>Essential Skills of Communicating: 05-Manage Nonverbal Behavior</b>	Make verbal and nonverbal communication congruent to reinforce the intent of messages.	1	Intermediate
<b>Essential Skills of Communicating: 06-Impactful Feedback</b>	Provide the rationale for your feedback, whether to reinforce or improve performance.	1	Intermediate
<b>Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating</b>	Practice the skills learned in Essential Skills of Communicating in a full scenario situation.	1	Intermediate
<b>Essential Skills of Leadership: 01-The Work of Leaders</b>	Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path.	1	Intermediate
<b>Essential Skills of Leadership: 02-Focus on Behavior</b>	Base discussions about performance and work habits on behavior rather than on personalities and attitudes.	1	Intermediate
<b>Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem</b>	Acknowledge contributions, results and accomplishments to enhance self-esteem.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
Essential Skills of Leadership: 04-Encourage Team Member Participation	Involve team members in goal setting, problem-solving and decision-making.	1	Intermediate
Essential Skills of Leadership: 05-Lead Effective Meetings	Deploy meeting management skills to meet the goals of the meeting in the available time.	1	Intermediate
Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership	Practice the skills learned in Essential Skills of Leadership in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check	Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment.	1	Intermediate
Essentials of I-9 Compliance	To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers. There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	0.5	Fundamental
Ethics for Professionals	What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently.	1	Fundamental
Everyone is a Leader	For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyone's benefit.	0.5	Intermediate
Excel Basics for Mac	Get Started with Microsoft Excel - The Most Useful Software Ever Created Excel can do almost anything - crunch numbers, create lists, store data, edit budgets, and more. In this basics course we'll show you how to get started with Excel on a Mac, including using the most popular features. Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!	2.25	Fundamental
Excel for Project Management	Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan.	1	Fundamental
Excel: Creating Dashboards	Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that.	3	Fundamental
Excel: Data Analysis With Pivot Tables	Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016.	2.5	Advanced
Excel: Introduction to PowerPivot	Learn How To Transform Excel Into Your Big Data Power Tool. Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course we'll show you everything you need to know in order to install and start using Power Pivot in Excel.	1.25	Fundamental
Excel: Power Functions	Learn to Use the 10 Excel Functions Recommended by the Experts. Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, it's guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis.	1	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Facilitating Meetings and Groups</b>	LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals.	7	Intermediate
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fundamentals of Business Crisis Management</b>	In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan.	2.5	Intermediate
<b>Gender Identity: Changes Organizations are Making to Increase Awareness</b>	Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness.	0.2	Intermediate
<b>Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace</b>	A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work.	0.2	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Gender Identity: What does LGBTQIA+ mean?</b>	When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym.	0.2	Intermediate
<b>Get It Done: Managing Email</b>	<b>Take Control Of Your Inbox!</b> For many people email is a source of stress, when it really should be a valuable productivity tool. In this course we'll show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email.	1	Fundamental
<b>Get It Done: Sharing Calendars</b>	<b>How Do You Let Everyone Know Whats Going On? Its a common situation:</b> you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars.	1.5	Fundamental
<b>Get SMARTER with Goals</b>	What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals.	0.5	Intermediate
<b>Giving Feedback that Gets Results</b>	Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process.	0.75	Intermediate
<b>Gmail Essentials 2015</b>	<b>Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed!</b>	2.25	Fundamental
<b>G-Suite Essentials (Google)</b>	<b>Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite.</b>	2.25	Fundamental
<b>Healthy Practices: Nutrition, Exercise, and Safety</b>	We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life.	0.5	Intermediate
<b>Hiring Practices</b>	Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation.	1.25	Intermediate
<b>Improving Work Habits: 01-Performance Issue or Poor Work Habit?</b>	Distinguish between a performance issue and a poor work habit, which require a different problem-solving process.	1	Intermediate
<b>Improving Work Habits: 02-Describing the Work Habit</b>	Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions.	1	Intermediate
<b>Improving Work Habits: 03-Keep Ownership with the Team Member</b>	What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit.	1	Intermediate
<b>Improving Work Habits: 04-How Would You Empathize?</b>	Use empathy in your discussions is important for team member self-esteem and buy-in.	1	Intermediate
<b>Improving Work Habits: 05-Your Path to Improving Work Habits</b>	Learn and apply the five-step process for improving poor work habits shown by your team members.	1	Intermediate
<b>Improving Work Habits: 06-Mastering Improving Work Habits</b>	Practice Improving Work Habits in a full scenario situation.	1	Intermediate
<b>Improving Work Habits: 07-Improving Work Habits Health Check</b>	Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment.	1	Intermediate



<b>Professional Development (Continued)</b>			
<b>Title</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
<b>Increase Your Listening &amp; Communication Power</b>	Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Increase Your Listening Power (Effective Communication)</b>	Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Internet and Computer Policy</b>	As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused.	0.5	Intermediate
<b>Interpersonal Communication</b>	Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Interviewing Skills for Employees</b>	What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview.	0.5	Intermediate
<b>Interviewing Skills for Managers: Conducting an Interview</b>	Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats.	0.5	Intermediate
<b>Interviewing the Right Way</b>	There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position.	0.5	Fundamental
<b>Interviewing the Right Way &amp; Managing the Millennial (RV-PGM145)</b>	The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	1	Fundamental
<b>It's my Job! Career Growth</b>	While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process.	0.5	Intermediate
<b>Lead with Strengths</b>	It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths.	0.5	Intermediate
<b>Leading Engaging Zoom Meetings</b>	Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement.	1	Intermediate
<b>Management 101: 01-Introduction to Management</b>	You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager.	1	Intermediate
<b>Management 101: 02-Leading and Communicating as a Manager</b>	Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Management 101: 03-Making an Impact as a Manager</b>	Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact.	1	Intermediate
<b>Management 101: 04-Taking Control as a Manager</b>	Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department.	1	Intermediate
<b>Managing a Millennial</b>	Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the trophy generation is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	0.5	Fundamental
<b>Managing a Work Group</b>	Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Managing Complaints: 01-The Difficulties of Managing Complaints</b>	Discover the difficulties of managing team member complaints and how to overcome these issues.	1	Intermediate
<b>Managing Complaints: 02-Handling Complaints Using Active Listening</b>	Use active listening skills to effectively handle team member complaints.	1	Intermediate
<b>Managing Complaints: 03-Your Path to Managing Complaints</b>	Learn and apply the five-step process for effectively handling complaints from your team members.	1	Intermediate
<b>Managing Complaints: 04-Mastering Managing Complaints</b>	Practice Managing Complaints in a full scenario situation.	1	Intermediate
<b>Managing Complaints: 05-Managing Complaints Health Check</b>	Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment.	1	Intermediate
<b>Managing Contractors and Temporary Employees</b>	In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department.	3.25	Intermediate
<b>Managing Generation X</b>	You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers.	1	Intermediate
<b>Managing Stress at Work</b>	Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience.	0.5	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Managing Technical Professionals</b>	In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals.	2.75	Intermediate
<b>Managing Up: Strengthening Business Relationships</b>	Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to.	0.5	Intermediate
<b>Managing Yourself</b>	Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Mastering Access 2016, Basics</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports.	3	Fundamental
<b>Mastering Access 2016, Intermediate</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules. Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdata-sheets, field validation, parameter queries, and more.	2.75	Fundamental
<b>Mastering Excel 2016</b>	The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules.	11.5	Advanced
<b>Mastering Excel 2019 - Advanced</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more.	4.3	Fundamental
<b>Mastering Excel 2019 - Basics</b>	There are two kinds of people: Those who are masters at Excel, and those who wish they were. When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019.	4.5	Fundamental
<b>Mastering Excel 2019 - Intermediate</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables, Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines	5	Intermediate
<b>Mastering Google Drive (2020)</b>	Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device.	1.25	Fundamental
<b>Mastering Microsoft Project 2016 - Part 1</b>	In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval.	2.25	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Mastering Microsoft Project 2016 – Part 2</b>	In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project.	2.25	Intermediate
<b>Mastering Microsoft Teams (2019)</b>	Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams. The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams	5	Fundamental
<b>Mastering Office 365 (2018)</b>	Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!	11	Intermediate
<b>Mastering OneNote 2016</b>	Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform.	2.5	Intermediate
<b>Mastering Outlook 2016</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	6.25	Intermediate
<b>Mastering Outlook 2016 Advanced</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	3	Advanced
<b>Mastering Outlook 2016 Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!	3.25	Fundamental
<b>Mastering Outlook 2019 - Advanced</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master!	2	Advanced
<b>Mastering Outlook 2019 - Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the time if the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!	2.25	Fundamental
<b>Mastering PowerPoint 2016</b>	Making PowerPoint 2016 Easy & Effective Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	8.25	Intermediate
<b>Mastering PowerPoint 2016 Advanced</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	3.5	Advanced
<b>Mastering PowerPoint 2016 Basics</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	4.75	Intermediate
<b>Mastering PowerPoint 2019 - Advanced</b>	Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	5	Fundamental
<b>Mastering PowerPoint 2019 - Basics</b>	Making PowerPoint 2019 Easy & Effective. Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019.	4.75	Fundamental
<b>Mastering QuickBooks Desktop 2018</b>	Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks.	3	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
Mastering QuickBooks Online 2018	Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online.	4.25	Intermediate
Mastering Word 2016	Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features.	9.75	Advanced
Mastering Word 2016 Advanced	Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Advanced
Mastering Word 2016, Basics	Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.6	Fundamental
Mastering Word 2016, Intermediate	Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Intermediate
Mastering Word 2019 - Advanced	Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents.	2.5	Fundamental
Mastering Word 2019 - Basics	Learn the Basics of Microsoft Word 2019 Delivered in Easily Searchable, Highly Informative Content Lessons Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word.	3.5	Fundamental
Mastering Word 2019 - Intermediate	Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates, Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge	2.75	Intermediate
Meetings That Get Results	Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting!	0.5	Intermediate
Microsoft Forms Essentials	Learn How Microsoft Forms Makes It Easy to Collect Data via Forms or Quizzes Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms! In this course well take a close look at all the features and benefits of this new Office 365 tool!	1.33	Fundamental
Microsoft Lync Essentials	Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue! This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync.	1.25	Fundamental
Microsoft Project 2013 Essentials Training	Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you.	2	Intermediate
Microsoft Project 2013 Intermediate Training		2	Intermediate
Microsoft Sway Essentials	Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway.	1.25	Fundamental
Microsoft Teams Essentials	Learn To Collaborate and Communicate with Microsoft Teams Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes).	1	Fundamental
Microsoft To Do Essentials	Organize Your Day Track Your To-Dos and Focus on Whats Important The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks.	0.5	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
Modern React with Redux	This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props, state, and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props and state and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them.	10.5	Intermediate
Motivating Employees	How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization.	0.5	Intermediate
Motivational Ethics	<b>**This course does not provide CEU or PDH credit**</b> A lot of good people find themselves getting fired, or even getting arrested, and have to ask, How did I end up here? You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life. What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful.	1.75	Fundamental
Multigeneration Management: 01-Workforce Generations	At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace.	1	Intermediate
Multigeneration Management: 02-Leading Silents and Boomers	For today's managers, it is essential to understand the unique needs and work habits of the companies' elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to America's workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generation's different behaviors, attitudes, and priorities.	1.5	Intermediate
Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next)	Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrow's experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series.	1.25	Intermediate
Multigeneration Management: 04-Cross-Generational Teams	Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generation's different behaviors, attitudes, and priorities; this is the fourth course.	1	Intermediate
Multigeneration Management: 05-Developing Generations	When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generation's different behaviors, attitudes, and priorities; this is the final course.	1	Intermediate
Negativity in the Workplace	In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome.	4	Intermediate
Office 365 Groups Essentials	Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team.	1	Fundamental
Office 365 Planner Essentials	Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans.	0.75	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
OJT Mentor	On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more.	0.5	Intermediate
OneDrive Essentials (2016)	OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others.	1.5	Fundamental
OneNote for Windows 10 Essentials	The Structure You Need with the Flexibility You Want OneNote is one of Microsoft's unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and more all in one place. It's almost like having an old-school, three-subject binder except with unlimited sections and your notebook won't weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote.	1.25	Fundamental
Online Marketing 101	This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators. You've heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques.	1.5	Fundamental
Outlook 2013: 01-Getting Started in Outlook 2013	Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore what's new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsoft's Outlook Exam 77-423.	1.5	Intermediate
Outlook 2013: 02-Message and Contact Management in Outlook 2013	Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013's available features and tools for email and contact customizations.	1.5	Intermediate
Outlook 2013: 03-Time and Task Management in Outlook 2013	Through these discussions, you are preparing for Microsoft's Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists.	1.25	Intermediate
Outlook Online Essentials (2018)	Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People. Sometimes you need a quick way to get to your stuff no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well.	2.5	Fundamental
Password Security Basics	This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords.	0.25	Fundamental
Peer Checking	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Performance Management: 01-Preventing Performance Problems	The most effective method for managing performance problems is preventing them. As a manager, it's important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organization's skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series.	1	Intermediate
Performance Management: 02-Identifying Performance Problems and Causes	Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series.	1	Intermediate
Performance Management: 03-Feedback and Counseling	The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Performance Management: 04-Effectively Disciplining Problem Performance</b>	Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change.	1	Intermediate
<b>Persuasion: The Art of Communication</b>	All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade.	1.25	Fundamental
<b>Power BI Essentials</b>	Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish.	1	Fundamental
<b>Power Up PowerPoint</b>	Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience. Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to power up your next presentation!	2.75	Intermediate
<b>Powerful Presentations</b>	Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results.	0.5	Intermediate
<b>Pricing as a Professional</b>	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Problem Solving</b>	Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Procedure Use and Adherence</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Protecting Your Team Against Workplace Violence</b>	Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents.	1	Fundamental
<b>Protection Against Malware</b>	Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies	0.25	Fundamental
<b>Providing Performance Feedback: 01-The Power of Performance Feedback</b>	Discover when to give performance feedback to team members and what sources to use for information.	1	Intermediate
<b>Providing Performance Feedback: 02-Providing Verbal Performance Feedback</b>	Practice providing verbal performance feedback to team members using key concepts in the course.	1	Intermediate



## Professional Development (Continued)

Title	Description	Hours	Level
Providing Performance Feedback: 03-Providing Written Performance Feedback	Learn how to provide effective feedback in writing to empower team members.	1	Intermediate
Providing Performance Feedback: 04-Your Path to Providing Performance Feedback	Learn and apply the five-step process for providing timely performance feedback to a team member.	1	Intermediate
Providing Performance Feedback: 05-Mastering Providing Performance Feedback	Practice Providing Performance Feedback in a full scenario situation.	1	Intermediate
Providing Performance Feedback: 06-Providing Performance Feedback Health Check	Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment.	1	Intermediate
Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental
Resolving Conflicts: 01 - Characterizing Conflict	Discover the four stages of conflict and the impact that unresolved conflict can have on an organization.	0.25	Intermediate
Resolving Conflicts: 02-Know Your Conflict Behavior	Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations.	1	Intermediate
Resolving Conflicts: 03-Identifying Conflict Behaviors	Identify the conflict behavior exhibited in order to properly handle the conflict.	1	Intermediate
Resolving Conflicts: 04-Your Path to Resolving Conflicts	Learn and apply the five-step process for resolving a conflict between two or more team members.	1	Intermediate
Resolving Conflicts: 05-Mastering Resolving Conflicts	Practice Resolving Conflicts in a full scenario situation.	1	Intermediate
Resolving Conflicts: 06-Resolving Conflicts Health Check	Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment.	1	Intermediate
Rewarding Peak Performers	Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the business bottom line.	1.5	Intermediate
Rules for Discussing Politics at Work	It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up.	0.2	Intermediate
Sales 101: Appointment Making	The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including: What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers	1.25	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Salesforce Essentials</b>	Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects.	1.25	Fundamental
<b>Saving Time in Outlook</b>	From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include: Using Quick Steps Creating reusable text, searches, and rules to automate things you do often. Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!	0.5	Fundamental
<b>Self-checking (STAR)</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Seven Basic Quality Tools</b>	The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses.	0.25	Intermediate
<b>Sexual Harassment Awareness</b>	In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that persons sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment.	0.25	Intermediate
<b>SharePoint for Site Owners</b>	Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!	1.5	Fundamental
<b>Sharepoint Online Essentials</b>	Share Files and Post Information For Your Team with SharePoint Online SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team.	0.75	Fundamental
<b>Skype for Business Essentials</b>	Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system.	0.3	Fundamental
<b>Smart Business Writing: 4 Stages to Writing Your Best</b>	Some people thinks that in the grand scheme of things, excellence in writing isn't all that important as long as you get the General idea across. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing).	1	Intermediate
<b>Smart Business Writing: Emails &amp; Technical Proposals (RV-PGM139)</b>	This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails, Tackling the Technical Proposal. This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read.	1	Intermediate
<b>Smart Business Writing: How to Write Powerful &amp; Persuasive Emails</b>	Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit Send. This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that tells information and email that sells; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!	0.5	Intermediate
<b>Smart Business Writing: Short, Sweet and To-the-Point Reports</b>	If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be long, it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Business Writing: Tackling the Technical Proposal</b>	Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company.	0.5	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Certificate: A Comprehensive Sales Program</b>	In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of Sales Smart Sales 2: Naming the Decision Maker & Setting Appointments Smart Sales 3: Holding Appointments & Advancing the Sale Smart Sales 4: Dealing with Objections & Closing the Sale Smart Sales 5: Business-to-Business Sales Smart Sales 6: The Sales Cycle	3	Fundamental
<b>Smart Customer Service 1: Courtesies, Attitude, and Ethics</b>	You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet.	0.5	Intermediate
<b>Smart Customer Service 2: Listening for Understanding</b>	As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	0.5	Intermediate
<b>Smart Customer Service 3: Effective Verbal and Nonverbal Communication</b>	Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone.	1	Intermediate
<b>Smart Customer Service 4: 3 Steps to Successful Customer Interaction</b>	In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	0.5	Intermediate
<b>Smart Customer Service 5: Handling Customer Complaints</b>	This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation.	1	Intermediate
<b>Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding</b>	This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	1	Fundamental
<b>Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140)</b>	This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer Interaction You will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	1	Intermediate
<b>Smart Finances: Creating a Budget that Works for You</b>	A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Health: Best Practices to Help You Quit Smoking</b>	According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever.	3	Intermediate
<b>Smart Health: Child Nutrition - How to Avoid/ Prevent Childhood Obesity</b>	Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift!	1	Intermediate
<b>Smart Health: Drinking Responsibly</b>	Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve..	1	Intermediate
<b>Smart Health: Eating Right</b>	In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process.	1	Intermediate
<b>Smart Health: HIPAA Privacy Standards for Everyone</b>	We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly.	1	Fundamental
<b>Smart Health: Managing Your Cholesterol and Blood Pressure</b>	Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands!	1	Intermediate
<b>Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You</b>	Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of exercise, and discuss how to create a successful exercise program that you can use to get started.	1	Intermediate
<b>Smart Health: Proper Posture and Breathing</b>	Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it.	1	Intermediate
<b>Smart Health: Sleeping - How to Ensure You Are Well-Rested &amp; Energized</b>	Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep.	1	Intermediate
<b>Smart Health: Yoga &amp; Meditation - Finding your Inner Chi</b>	Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the Chi using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each.	1	Intermediate
<b>Smart Leadership: Leaders, Model the Way (RV-PGM141)</b>	This interactive online course is presented in two modules: Smart Leadership: What Leaders Do    Smart Leadership: Model the Way Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you.	3	Intermediate
<b>Smart Leadership: Leadership Qualities (PGM142)</b>	This interactive online course is presented in two modules:    Smart Leadership: Inspire a Shared Vision    Smart Leadership: Encourage the Heart Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In Encourage the Heart, you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations.	3	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Leadership: Part 1 - What Leaders Do</b>	Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, <i>The Leadership Challenge</i> , by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series.	1.5	Intermediate
<b>Smart Leadership: Part 2 - Model the Way</b>	What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: Model the Way. This is the second in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 3 - Inspire a Shared Vision</b>	When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 4 - Challenge the Process</b>	If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things. - Dick Nettel, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, Challenge the Process, you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 5 - Enable Others to Act</b>	In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, You can't do it alone. Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 6 - Encourage the Heart</b>	Most people rate having a caring boss even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, Encourage the Heart. You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Management: Methods for Motivating and Mentoring Your Team</b>	Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company.	2	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Management: Business Essentials</b>	You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind.	2	Intermediate
<b>Smart Management: Coaching for Better Performance</b>	There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan.	1	Intermediate
<b>Smart Management: Data Security</b>	Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information.	1	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate
<b>Smart Management: Effective Performance Review Practices</b>	Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company.	2	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Customer Service</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Sales</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: How to Handle Workplace Challenges</b>	Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Management: Key Skills for Managing &amp; Coaching Your Team</b>	Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself.	0.5	Intermediate
<b>Smart Management: Lawful Hiring Practices</b>	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate
<b>Smart Management: Lawful Termination Practices</b>	There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination.	0.5	Intermediate
<b>Smart Management: Managing a Geographically Distributed Workforce</b>	It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process.	0.5	Intermediate
<b>Smart Management: SMART Goals - Setting Effective Targets for Success</b>	Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success.	1	Intermediate
<b>Smart Management: Successfully Transitioning from Team Member to Manager</b>	Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed.	1	Intermediate
<b>Smart Management: The Art &amp; Science of Delegation</b>	Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tells us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects.	1	Intermediate
<b>Smart Mental Health: Core Values and Finding a Purpose in Life</b>	If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you.	1	Intermediate
<b>Smart Mental Health: Goal Setting and Visualization Techniques</b>	Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives.	1	Intermediate
<b>Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life</b>	This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives.	1	Intermediate
<b>Smart Mental Health: Keys to Successful Parenting</b>	Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible.	1	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Mental Health: Managing Anger and Emotions</b>	The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities.	1	Intermediate
<b>Smart Mental Health: Reducing Stress and Anxiety</b>	Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress.	1	Intermediate
<b>Smart Quality: Building Quality Awareness</b>	You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work.	1	Fundamental
<b>Smart Quality: Process Improvement</b>	All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time.	0.5	Fundamental
<b>Smart Quality: Systematic Problem Solving</b>	All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization.	0.5	Intermediate
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Closing the Call</b>	Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements</b>	Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections</b>	One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective.	0.5	Fundamental



## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics</b>	In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers</b>	The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections</b>	Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning</b>	This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Presenting an Offer</b>	Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning</b>	Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process</b>	There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message.	0.5	Fundamental
<b>Smart Time Management: 7 Steps to Regaining Control of Your Day</b>	Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day.	1	Fundamental
<b>Smart Time Management: The 80/20 Rule for Making Every Minute Count</b>	In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many.	1	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals Generate leads Learn about other companies and their hierarchies Leverage powerful tools to find and reach the right people Tap into the knowledge of their network, and Discover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Putting Your People First - Personnel Administration</b>	The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook) Sexual Harassment, Equal Employment Opportunity (EEO) Drug Free Workplace, The Americans with Disabilities Act of 1990 (Including 2008 amendments)	2	Fundamental
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)</b>	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
<b>Stop When Unsure</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Storytelling for Business</b>	Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues. Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories.	1.25	Fundamental
<b>Strategic Brand Management</b>	Effective brand strategy necessitates taking a pan-company perspective to understand the organization's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organization brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands.	2.92	Intermediate
<b>Stress &amp; Change Management for Design and Construction Professionals</b>	Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental

<b>Professional Development (Continued)</b>			
<b>Title</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
<b>Stress Management and Prevention</b>	Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress.	0.25	Intermediate
<b>Stronger Together: Delegation and Task Management</b>	YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and Play All Day, the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the Play All Day team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!	0.5	Fundamental
<b>Substance Abuse Awareness</b>	Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse.	0.5	Intermediate
<b>Successful Hiring</b>	Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview.	1.25	Intermediate
<b>Successful Negotiation</b>	One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life.	1	Intermediate
<b>Successful Termination</b>	Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee.	1.25	Intermediate
<b>Supporting Change: 01-The 3 Phases of Change</b>	Understand the three phases of change and what to expect in each phase.	0.08	Intermediate
<b>Supporting Change: 02-Reactions to Change</b>	Identify the common reactions to change and strategies to best handle each type of reaction.	1	Intermediate
<b>Supporting Change: 03-Your Path to Supporting Change</b>	Learn and apply the five-step process for helping your team through changes in the workplace.	1	Intermediate
<b>Supporting Change: 04-Mastering Supporting Change</b>	Practice Supporting Change in a full scenario situation.	1	Intermediate
<b>Supporting Change: 05-Supporting Change Health Check</b>	Test your ability to apply Supporting Change concepts in this skills-based scenario assessment.	1	Intermediate
<b>The Art of Negotiation</b>	From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want.	0.6	Intermediate
<b>The Change Process</b>	In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes. This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours.	2.5	Intermediate
<b>The Power of One-Taking Accountability to Get Results</b>	Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability.	0.5	Intermediate

## Professional Development (Continued)

Title	Description	Hours	Level
The Power of Vision	Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path.	0.5	Intermediate
The Risk of Misclassification of Employees & Essentials of I-9 Compliance (RV-PGM144)	In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	1	Fundamental
The Science of Personal Productivity	Exploring the power of the mind to get more done. Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying Yes to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home.	0.75	Fundamental
The Top 5 Marketing Mistakes	What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course). In this course, Rich Harshaw explains why his famous statement, Everything You Know About Marketing Is Wrong is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results.	3	Fundamental
Time Management Basics	You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of.	1.5	Fundamental
Tips for Managing Older Team Members	Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not to do, when managing older team members.	0.2	Intermediate
Transition to Leadership	New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role.	0.6	Intermediate
Turnover	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Understanding Business Ethics	In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company.	2	Intermediate
Understanding Gender and Gender Identity	Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self.	0.2	Intermediate
Understanding HIPAA	In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information.	4	Intermediate
Understanding Workers' Compensation for Employees (V15)	What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Understanding Workers' Compensation for Employers V14	Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Violence in the Workplace</b>	Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations.	0.25	Intermediate
<b>What's New in Excel 2019</b>	Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More! The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike.	0.75	Intermediate
<b>What's New in PowerPoint 2019</b>	Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019! Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone.	1.25	Intermediate
<b>What's New in Word 2019</b>	New Editing and Image Features Improve The Worlds Most Popular Document App The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike.	1.25	Intermediate
<b>What's New in Adobe CC 2015?</b>	Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color.	1.5	Intermediate
<b>What's New in Office 2016?</b>	Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents. Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016.	1	Intermediate
<b>Windows 10 Essentials</b>	This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits.	1	Fundamental
<b>Windows 8.1 Essentials</b>	This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95.	0.5	Fundamental
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 2: Effective Design &amp; Development</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## Professional Development (Continued)

Title	Description	Hours	Level
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	<p>Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Work Life Balance</b>	<p>Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire.</p>	0.5	Intermediate
<b>Working Effectively with Building Officials and Inspectors</b>	<p>Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials.</p>	1	Fundamental

## Health, Safety & Environment Premium

Title	Description	Hours	Level
<b>Rigging: Basic Lifting</b>	This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability.	2	Intermediate
<b>Rigging: Ladders and Scaffolds</b>	This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds.	2	Intermediate
<b>Material Handling: Tank Trucks</b>	This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Laboratory Safety (BBLASAO0CEN)</b>	This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Warning Signs and Labels (BBWSAL0CEN)</b>	This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Personal Safety for Lab Technicians</b>	This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>The Safe Lab Environment</b>	This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Emission Controls</b>	One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions.	1	Intermediate
<b>OSHA Safety: Drilling</b>	The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities.	4	Fundamental
<b>OSHA Safety: Introduction to Powered Industrial Trucks</b>	Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles.	1	Fundamental
<b>Safe Work Permits</b>	This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc.	1	Intermediate
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Developing and Implementing an EPA RMP</b>	Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68. To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program.	2	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental



## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of work-places in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental
<b>Health Effects Caused by Mold</b>	In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans.	1	Fundamental
<b>Personal Protective Equipment For Mold Remediation Contractors and Consultants</b>	From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment.	1	Fundamental
<b>Mold Safety and Health</b>	Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	1	Fundamental
<b>Mold Remediation</b>	Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation.	1	Fundamental
<b>More Than Mold - Health Effects Associated With Mold and Water Damage</b>	Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health.	3	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components, Equipment grounding	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations, Safe working clearances, Safety practices	2	Intermediate
<b>Developing an Employee Safety Training Program</b>	People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Site and Building Services</b>	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Fire Code Essentials – Special Processes and Building Uses</b>	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
<b>Lead Safety in Construction: Keeping You Safe and Compliant</b>	Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment.	1	Fundamental
<b>Protecting Your Team Against Workplace Violence</b>	Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents.	1	Fundamental
<b>Active Shooter and Other Acts of Targeted Violence</b>	Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders.	1	Fundamental
<b>Fire and Smoke Dampers Simplified</b>	Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies.	1	Intermediate
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>2015 International Fire Code®: Significant Changes</b>	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>Lab Safety: Electrical Safety in the Laboratory</b>	This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Flammables &amp; Explosives in the Laboratory</b>	This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: GHS Safety Data Sheets in the Laboratory</b>	This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Handling Compressed Gas Cylinders in the Laboratory</b>	This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Laboratory Ergonomics</b>	This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Laboratory Hoods</b>	MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Orientation to Laboratory Safety</b>	This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: OSHA Formaldehyde Standard</b>	This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Planning for Laboratory Emergencies</b>	This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Preventing Contamination in the Laboratory</b>	This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Safe Handling of Laboratory Glassware</b>	This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Lab Safety: Safety Showers &amp; Eye Washes in the Laboratory</b>	This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Fire! Designing Means of Escape</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>OSHA Underground Construction</b>	This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: Underground Construction Part I. Underground Construction Part II, Caissons & Cofferdams, Compressed Air, After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>OSHA Pressure Vessel Chemical Cracking</b>	A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health. This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>8-Hour HAZWOPER Refresher</b>	This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover: Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer. Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements.	8	Intermediate
<b>Respirators - Voluntary Use</b>	A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the voluntary use of respirators, there are several requirements they must fulfill.	0.25	Intermediate
<b>Workplace Hazardous Materials Information System (WHMIS)</b>	The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements.	0.5	Intermediate
<b>HAZWOPER Site Control</b>	Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site.	0.61	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Alcohol</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employee's appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing.	1	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Drugs</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employee's appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of DOT-prohibited drug use. This course describes the five DOT-regulated drug classes, including their signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing.	1	Intermediate
<b>Delivery Truck Maintenance</b>	Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible.	0.5	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>HAZWOPER Air Monitoring</b>	Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results.	0.6	Intermediate
<b>HAZWOPER Chemical Protective Clothing</b>	Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response.	0.38	Intermediate
<b>HAZWOPER Chemical Protective Clothing Selection</b>	Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing.	0.43	Intermediate
<b>HAZWOPER Confined Spaces</b>	All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHA's permit-required confined space regulations and typical confined space emergency response procedures.	0.51	Intermediate
<b>HAZWOPER Decontamination</b>	Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices.	0.65	Intermediate
<b>HAZWOPER Emergency Response Plan</b>	Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans.	0.46	Intermediate
<b>HAZWOPER Hazmat Physical Properties</b>	The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity.	0.33	Intermediate
<b>HAZWOPER Incident Command System</b>	An incident is any event that requires emergency response to protect life or property. OSHA's HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system.	0.7	Intermediate
<b>HAZWOPER Medical Surveillance</b>	HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed.	0.4	Intermediate
<b>HAZWOPER Overview</b>	Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements.	0.35	Intermediate
<b>HAZWOPER Ionizing Radiation Safety</b>	Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous.	0.56	Intermediate
<b>HAZWOPER Respirators</b>	Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response.	0.7	Intermediate
<b>HAZWOPER Risk Assessment</b>	The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents.	0.53	Intermediate
<b>HAZWOPER Safety and Health Program</b>	HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements.	0.25	Intermediate
<b>HAZWOPER Release Mitigation</b>	Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release. Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability.	0.51	Intermediate
<b>HAZWOPER Toxicology</b>	A chemical's ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures.	0.51	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>DOT Alcohol and Drug Testing for Drivers</b>	Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process.	0.75	Intermediate
<b>DOT CSA Awareness</b>	The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur.	0.75	Intermediate
<b>DOT Hours of Service Compliance</b>	The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves.	0.75	Intermediate
<b>DOT Hazmat - Security Awareness</b>	In 2010, the Pipeline & Hazardous Materials Safety Administration (PHMSA) published a rule modifying the security requirements for the commercial transportation of some hazardous materials. This rule requires shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan) and provide additional security training to employees. Among other things, they must ensure subject hazmat packages and containers are properly closed and secured, select routes that will minimize damage to or from hazardous materials, conduct background investigations on new employees, confirm the adequacy of carrier Security Plans, and integrate all aspects of the security rule into their normal business activities.	0.5	Intermediate
<b>DOT Hazmat - Marking</b>	The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of these markings and labels is to communicate the hazards and risks of the materials being transported to anyone who could be exposed to them. All markings must be legible and durable; clearly visible; written in English; printed on or affixed to the package surface or a label, tag, or sign; and placed away from other markings (such as advertising) that could substantially reduce their effectiveness. DOT marking requirements are detailed in Part 172, Subpart D of the HMR.	0.75	Intermediate
<b>DOT Hazmat - Placarding</b>	The DOT requires marking, labeling, and placarding of hazardous materials being transported in commerce to, from, or within the U.S. The term placarding refers to the placement of large durable versions of hazard labels on transport vehicles, bulk packages, freight containers, unit load devices, and rail cars. The purpose of marking, labeling, and placarding is to communicate the potential dangers of hazardous materials. Placards are especially important to emergency responders, who use this information to initiate protective actions after an incident or accidental release.	0.75	Intermediate
<b>DOT Hazmat - Labeling</b>	The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of marking and labeling is to communicate the hazards and risks of the materials being transported to anyone who could potentially be exposed to them. Labeling refers to the placement of primary and, if applicable, subsidiary hazard labels on the outer package. DOT labeling requirements are contained in Part 172, Subpart E of the HMR.	0.75	Intermediate
<b>HAZWOPER ERG Introduction</b>	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.38	Intermediate
<b>DOT Hazmat - General Awareness</b>	Regulations related to the transportation of hazardous materials are contained in Title 49 of the U.S. Code of Federal Regulations (CFR). The Hazardous Materials Regulations (HMR) in Parts 171-180 of Title 49 regulate the transportation of hazardous materials in commerce by motor vehicle, rail car, aircraft, or waterborne vessel. The HMR include classification, labeling, packaging, handling, loading and unloading requirements, in addition to standards for hazmat training, incident reporting, hazard communication, and security.	0.75	Intermediate
<b>DOT Hazmat - Shipping Papers</b>	Shippers of hazardous materials including hazardous wastes, hazardous substances, and marine pollutants must prepare and certify shipping papers before offering these materials for commercial transportation to, from, or within the U.S. Shipping papers identify and classify the hazardous materials being shipped, and notify shippers and carriers of their hazards. They help define the protective measures necessary to protect employees, the public, and the environment, and can provide critical information to emergency response personnel.	0.75	Intermediate
<b>DOT Hazmat - Highway Carrier Loading and Unloading Requirements</b>	The Hazardous Materials Regulations (HMR) apply to the transportation of hazardous materials in commerce. This includes the movement of these materials, plus all associated loading, unloading, and storage activities. Part 177 of the HMR contains requirements related to the transportation of hazardous materials by private, common, and contract for hire motor carriers. These carriers must also comply with several other Parts of the HMR, and many requirements of the Federal Motor Carrier Safety Regulations (FMCSR).	0.5	Intermediate
<b>DOT Hazmat - Highway Carrier Segregation Requirements</b>	Certain hazardous materials must be separated from each other during transportation in a manner that prevents commingling if a package failure or leakage were to occur. The segregation requirements for highway hazmat shipments are contained in Section 177.848 of the HMR. These requirements apply only to the Hazard Classes and Divisions listed in the HMR's Segregation Table and only if the materials are in packages that require labeling or placarding, a compartment within a cargo tank, or a portable tank loaded in a container or vehicle.	0.5	Intermediate
<b>DOT Hazmat - Packaging</b>	The primary function of hazmat packaging is to ensure that hazardous materials remain intact and secure during transportation. All packaging must be designed to ensure that under normal conditions, the contents will not be released and the packaging effectiveness will be maintained as it experiences typical physical stresses, including shocks, vibrations, temperature extremes, and changes in humidity and pressure. The Hazardous Materials Table (HMT) in Section 172.101 of the HMR can be used to determine the non-bulk and bulk packaging requirements, and any conditions for packaging exceptions, for hazardous material shipments.	1	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Office Safety</b>	While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace. This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace.	0.25	Intermediate
<b>Order Picker Safety</b>	An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers.	0.25	Intermediate
<b>Turret Truck Safety</b>	A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures.	0.25	Intermediate
<b>Cell Phone Use in the Workplace</b>	Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use.	0.5	Intermediate
<b>DOT Roadside Inspections</b>	Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections.	0.25	Intermediate
<b>Hazard Perception - Hidden Hazards</b>	Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able to anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards.	0.25	Intermediate
<b>Backing Up Safely</b>	How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards.	0.25	Intermediate
<b>Preventing Sideswipe Collisions</b>	Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards.	0.25	Intermediate
<b>Preventing Intersection Collisions - Cross Traffic</b>	Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic.	0.25	Intermediate
<b>Sharing the Road with Pedestrians and Cyclists</b>	Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians.	0.25	Intermediate
<b>Preventing Loss of Control Crashes</b>	Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control.	0.25	Intermediate
<b>Preventing Intersection Collisions - Rear-ends</b>	More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle.	0.25	Intermediate
<b>Dangers of Distracted Driving</b>	Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving.	0.25	Intermediate
<b>Preventing Intersection Collisions - Turning</b>	Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections.	0.25	Intermediate
<b>Environmental Driving Hazards</b>	Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards.	0.25	Intermediate
<b>Speed and Space Management</b>	Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management.	0.25	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Work Zone Driving Hazards</b>	Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone.	0.25	Intermediate
<b>Fatigue Management</b>	Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue.	0.25	Intermediate
<b>Environmental Awareness</b>	Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it. This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident.	0.25	Intermediate
<b>Vehicle-Mounted Aerial Device Safety</b>	Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs.	0.75	Intermediate
<b>Mobile Elevating Work Platform (MEWP) Safety for Supervisors</b>	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements.	1	Intermediate
<b>Mobile Elevating Work Platform (MEWP) Safety</b>	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements.	0.75	Intermediate
<b>Investigation of Failures</b>	This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories.	0.5	Intermediate
<b>Personal Accountability for Safety</b>	The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability.	0.25	Intermediate
<b>Radiofrequency (RF) Radiation Hazard Prevention</b>	Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation.	0.66	Intermediate
<b>Overhead Hoists</b>	Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. Well show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists.	0.5	Intermediate
<b>Line-of-Fire Safety</b>	Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards.	0.25	Intermediate
<b>Crane Lift Planning</b>	When involved with a lift have you ever asked yourself, I wonder if the crane is big enough? or Is the rigging set up properly? or Is it safe to move loads over or under a power line?. If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan.	0.5	Intermediate
<b>Banding Safety</b>	For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads.	0.5	Intermediate
<b>Cut and Puncture Wound Prevention</b>	Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place.	0.5	Intermediate
<b>Battery Acid and Spill Safety</b>	Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases.	0.75	Intermediate



## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Metalworking Fluid Safety</b>	Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids.	0.6	Intermediate
<b>Asbestos Awareness - 2 Hour Training</b>	Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents.	2	Intermediate
<b>Electric Pallet Jack Safety</b>	Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures.	0.5	Intermediate
<b>DOT Hazmat - In-depth Security</b>	The 2010 Pipeline & Hazardous Materials Safety Administration (PHMSA) Security Rule requires commercial shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan). This course identifies the types and quantities of hazardous materials that are covered by the rule, lists the required elements of and record keeping requirements for Hazardous Materials Security Plans, describes the three types of security that must be addressed by a Security Plan (personnel, route, and unauthorized access), and describes the general and in-depth training requirements for hazmat employees.	0.6	Intermediate
<b>Bloodborne Pathogens</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.43	Intermediate
<b>Electrical Safety General Awareness</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Ergonomics for Office Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>DOT ERG Introduction</b>	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.25	Intermediate
<b>Formaldehyde Awareness</b>	Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas.	0.25	Intermediate
<b>Clean Water Act Section 404 Permits</b>	The Clean Water Act (CWA) protects waters of the United States (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit.	0.75	Intermediate
<b>Hydrogen Sulfide Awareness</b>	Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H <sub>2</sub> S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation.	0.25	Intermediate
<b>Hand and Power Tools</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.38	Intermediate
<b>Lead Awareness</b>	Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods.	0.25	Intermediate
<b>Pedestrian Safety</b>	Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines.	0.25	Intermediate
<b>Radiation Safety</b>	The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program!	0.25	Intermediate
<b>Hexavalent Chromium</b>	Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium.	0.5	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Combustible Dusts</b>	It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and prevention measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions.	0.25	Intermediate
<b>Forklift Safety</b>	Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHA's general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks.	0.73	Intermediate
<b>Hot Work Safety</b>	This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work.	0.47	Intermediate
<b>Safety Management: Hot Work Permit</b>	This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employer's written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin.	0.25	Intermediate
<b>Forklifts - Reducing Product Damage</b>	This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators.	0.25	Intermediate
<b>Machine Guarding</b>	This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery.	0.62	Intermediate
<b>Safety and Health - Basic</b>	This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Safety and Health - Advanced</b>	This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Lead-Based Paint Safety</b>	This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint.	0.5	Intermediate
<b>Hydraulic Fluid Safety</b>	This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries.	0.47	Intermediate
<b>Trenching and Excavation Safety</b>	This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices.	0.5	Intermediate
<b>Crane and Hoist Rigging Safety</b>	Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE).	0.53	Intermediate
<b>Line Breaking Safety</b>	Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved. This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break.	0.5	Intermediate
<b>Heat Stress Symptoms and Prevention</b>	Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital.	0.4	Intermediate
<b>Safety Management: Industrial Hygiene Basics</b>	Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards.	0.5	Intermediate
<b>Driving Preparation</b>	Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you.	0.25	Intermediate
<b>Alert Driving</b>	Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques.	0.25	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Driving Hazard Recognition</b>	Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, you'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely.	0.25	Intermediate
<b>Supported Scaffold Safety</b>	This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate
<b>Arc Flash Safety</b>	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices.	0.53	Intermediate
<b>Mold Awareness and Prevention</b>	Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home.	0.25	Intermediate
<b>Process Safety Management</b>	Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail.	0.5	Intermediate
<b>Compressed Gas Cylinder Safety</b>	Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed.	0.38	Intermediate
<b>Heat Stress Causes</b>	Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information you'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat.	0.25	Intermediate
<b>Cold Stress</b>	People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress.	0.38	Intermediate
<b>Turpentine Awareness</b>	Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards.	0.25	Intermediate
<b>Chlorine Dioxide Awareness</b>	This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures.	0.25	Intermediate
<b>Job Hazard Analysis</b>	This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial workplaces. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.43	Intermediate
<b>Flammable and Combustible Liquids</b>	This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team.	0.5	Intermediate
<b>NFPA 70E Introduction</b>	NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements.	0.5	Intermediate
<b>Hand Washing and Hygiene</b>	Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many food borne illnesses that surround us.	0.25	Intermediate
<b>Back Injury Prevention</b>	If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries.	0.38	Intermediate
<b>Blocking and Cribbing for Heavy Equipment</b>	Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations.	0.35	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Safety Showers and Eye Washes</b>	Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace.	0.5	Intermediate
<b>Tanker Rollover</b>	Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover.	0.25	Intermediate
<b>Conveyor Safety</b>	Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe.	0.5	Intermediate
<b>Spill Prevention, Control, and Countermeasures</b>	When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations.	0.5	Intermediate
<b>Trenching and Excavation Soil Properties</b>	This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices.	0.25	Intermediate
<b>Ergonomics for Industrial Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Overhead Crane Operational Safety</b>	The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment.	0.25	Intermediate
<b>Overhead Crane Basics</b>	Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging.	0.25	Intermediate
<b>Confined Space Entry - Permit Required</b>	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space.	0.67	Intermediate
<b>Lockout Tagout for Affected Employees</b>	Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an affected employee is an employee that is affected by the lockout. This course will focus on the general awareness needed for these affected employees.	0.3	Intermediate
<b>Wire Rope Basics</b>	Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load.	0.5	Intermediate
<b>Bloodborne Pathogens for Schools</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bloodborne Pathogens for Hospitality</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Wire Rope Safety and Operation</b>	Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers.	0.25	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Hazard Communication GHS</b>	Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle.	0.5	Intermediate
<b>Equipment Hazard Basics</b>	Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards.	0.25	Intermediate
<b>Heavy Equipment Safety Introduction</b>	Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment.	0.75	Intermediate
<b>DOT HAZMAT - Safety Training</b>	Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT).	0.5	Intermediate
<b>First Aid - Sprains and Strains</b>	Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for treating sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care.	0.25	Intermediate
<b>Safety Management: OSHA Record keeping</b>	In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes.	0.75	Intermediate
<b>Behavior-Based Safety</b>	Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program.	0.5	Intermediate
<b>Flu Awareness</b>	According to the Centers for Disease Control and Prevention, or CDC, 25-50 million Americans get the flu each year. Of those, about 500,000 are hospitalized due to complications. There are tens of thousands of flu-associated deaths each year as well. It is essential for everyone to know how to recognize the symptoms of the flu, as well as how to treat it, when to go to the doctor, and how to prevent from getting it again.	0.33	Intermediate
<b>Anhydrous Ammonia Awareness</b>	Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures.	0.25	Intermediate
<b>Welding Safety</b>	Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards.	0.5	Intermediate
<b>Steam Pipe Safety</b>	Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes.	0.5	Intermediate
<b>Crystalline Silica Awareness</b>	Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it.	0.5	Intermediate
<b>Heavy Equipment Visibility</b>	When operating heavy equipment, the driver's view is likely to be blocked in several directions. These blind spots can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries.	0.25	Intermediate
<b>Maintenance Safety</b>	Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment.	0.67	Intermediate
<b>Lockout Tagout for Authorized Employees</b>	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.47	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Confined Space Entry Awareness</b>	A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry.	0.5	Intermediate
<b>RCRA - Introduction</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule.	0.5	Intermediate
<b>RCRA - Generator, Container, and Tank Requirements</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls.	0.5	Intermediate
<b>RCRA - Preparing for Transportation, Manifesting, and LDR</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards.	0.5	Intermediate
<b>RCRA - Emergencies, Inspections, and Training</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation.	0.5	Intermediate
<b>RCRA - Special Wastes and Other Requirements</b>	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process.	0.5	Intermediate
<b>Truck Mounted Cranes</b>	Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes.	0.5	Intermediate
<b>Working Over or Near Water</b>	Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices.	0.47	Intermediate
<b>Commercial Explosives Safety</b>	An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal.	0.43	Intermediate
<b>Pneumatic Tool Safety</b>	Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chipping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them.	0.25	Intermediate
<b>Electric Shock</b>	Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone.	0.5	Intermediate
<b>Chemical Unloading Basics</b>	All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed.	0.25	Intermediate
<b>Warehouse and Loading Dock Safety</b>	Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures.	0.5	Intermediate
<b>OSHA Electrical General Requirements</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHAs most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs.	0.5	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Personal Protective Equipment</b>	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.67	Intermediate
<b>Hearing Conservation</b>	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.67	Intermediate
<b>Fall Prevention and Protection - General Industry</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	1.05	Intermediate
<b>Asbestos Awareness</b>	Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma.	0.5	Intermediate
<b>Laser Safety</b>	Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERS). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines.	0.25	Intermediate
<b>Ladder Safety</b>	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.48	Intermediate
<b>Load Securement</b>	The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety.	0.5	Intermediate
<b>Portable Loading Ramps</b>	Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps.	0.25	Intermediate
<b>Driving Large Vehicles and Heavy Equipment</b>	Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles cars, vans, SUVs, and pickup trucks have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions.	0.25	Intermediate
<b>OSHA Electrical Wiring Methods</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHA's most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard.	0.5	Intermediate
<b>Stormwater Pollution Prevention</b>	Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities.	0.5	Intermediate
<b>Metal on Metal Safety</b>	When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury.	0.25	Intermediate
<b>First Aid - Initial Steps</b>	Its not always clear what to do in a situation that requires first aid. Especially if its an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victims airway is clear; checking to see if the victim is breathing; and checking to see if the victims circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid.	0.53	Intermediate
<b>First Aid - Automated External Defibrillator (AED)</b>	In some first aid situations, the victims heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the persons heart back into a normal rhythm. In this course, you'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED.	0.53	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>First Aid - Cardiopulmonary Resuscitation (CPR)</b>	If a persons not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, its important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained.	0.25	Intermediate
<b>First Aid - Heart Attacks and Cardiac Arrest</b>	Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest.	0.25	Intermediate
<b>First Aid - Shock</b>	When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock.	0.25	Intermediate
<b>First Aid - Breathing Emergencies</b>	People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course you'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance.	0.25	Intermediate
<b>First Aid - Stroke</b>	A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Associations F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures.	0.25	Intermediate
<b>First Aid - Bleeding Emergencies</b>	There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide.	0.5	Intermediate
<b>First Aid - Head, Neck, Back, and Spine Injuries</b>	Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations.	0.25	Intermediate
<b>First Aid - Seizures</b>	A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, you'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure.	0.25	Intermediate
<b>First Aid - Poisoning</b>	The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures.	0.25	Intermediate
<b>First Aid - Alcohol and Drug Overdose</b>	Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, you'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone who's overdosed on alcohol or drugs, and first aid to help the person who's overdosed.	0.25	Intermediate
<b>First Aid - Diabetic Emergencies</b>	Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, you'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia).	0.5	Intermediate
<b>First Aid - Head Injuries and Concussions</b>	Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, you'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness.	0.27	Intermediate
<b>First Aid - Eye Injuries</b>	A persons eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes.	0.25	Intermediate
<b>First Aid - Burns</b>	Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity first degree, second degree, and third degree. In this course, you'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns.	0.5	Intermediate
<b>First Aid - Broken Bones and Dislocations</b>	Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course you'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when its necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided.	0.25	Intermediate
<b>First Aid - Snake Bites</b>	Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid.	0.25	Intermediate



## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>First Aid - Animal and Human Bites and Scratches</b>	People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, you'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person.	0.5	Intermediate
<b>First Aid - Dehydration</b>	Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration.	0.25	Intermediate
<b>Respirator Basics</b>	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.47	Intermediate
<b>Air-Supplying Respirators</b>	Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators.	0.5	Intermediate
<b>Air-Purifying Respirators</b>	Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators.	0.5	Intermediate
<b>Respirator Medical Evaluation and Fit Testing</b>	Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail.	0.4	Intermediate
<b>Escape Respirators and SCSRs</b>	A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR.	0.53	Intermediate
<b>Work Zone Safety</b>	A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a one size fits all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course.	0.5	Intermediate
<b>Steel Erection Safety</b>	Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents.	0.5	Intermediate
<b>Safety Management: Incident Investigation</b>	As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions.	0.5	Intermediate
<b>Hand Safety</b>	Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries.	0.25	Intermediate
<b>Slips, Trips, and Falls</b>	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.48	Intermediate
<b>First Aid - Spider Bites</b>	Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, you'll learn basic first aid for minor spider bites. In addition, you'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone.	0.25	Intermediate
<b>First Aid - Unconsciousness</b>	People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid.	0.25	Intermediate
<b>Safety Management: Medical and Exposure Records Access</b>	The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers.	0.25	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Universal Waste Storage and Handling</b>	There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes.	0.5	Intermediate
<b>Pollution Prevention Best Practices</b>	Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source.	0.5	Intermediate
<b>SPCC Inspections</b>	The purpose of the EPAs Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems.	0.5	Intermediate
<b>SPCC Run-On and Runoff</b>	The purpose of the EPAs SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals.	0.5	Intermediate
<b>Construction Site Stormwater Runoff Control</b>	Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP).	0.5	Intermediate
<b>SPCC Secondary Containment</b>	At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges.	0.5	Intermediate
<b>Safety Management: Near Miss Best Practices</b>	The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization.	0.25	Intermediate
<b>Pressure Washing Best Management Practices</b>	Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water.	0.5	Intermediate
<b>Volatile Solvent Spill Response</b>	Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid. Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration.	0.25	Intermediate
<b>Safety Management: Floor and Walkway Safety and Auditing</b>	Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces.	0.5	Intermediate
<b>Safety Management: Slip, Trip, and Fall Prevention Inspections</b>	Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses.	0.5	Intermediate
<b>Above ground Storage Tank Requirements (AST)</b>	Any storage container of at least 55 gallons that is completely above ground, partially buried (<10%), or located in a bunker or subterranean vault is considered an above ground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to above ground storage tanks.	0.5	Intermediate
<b>Underground Storage Tank Requirements (UST)</b>	Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overflow control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations.	0.5	Intermediate
<b>Bioremediation Tactics</b>	Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose.	0.5	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Hazardous Material Labeling</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options.	0.5	Intermediate
<b>Hazardous Material Classifications</b>	To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012.	0.5	Intermediate
<b>Hazardous Material Storage</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals.	0.25	Intermediate
<b>Worker Right to Know (RTK)</b>	Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet.	0.5	Intermediate
<b>Storage and Handling of Corrosives</b>	Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times.	0.5	Intermediate
<b>Storage and Handling of Pesticides</b>	Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace.	0.5	Intermediate
<b>Storage and Handling of Category 1 and 2 Flammables</b>	GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location.	0.5	Intermediate
<b>Storage and Handling of Category 3 and 4 Flammables</b>	Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace.	0.5	Intermediate
<b>Mechanical Power Press Safety</b>	A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the point of operation - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards.	0.5	Intermediate
<b>First Aid - Scorpion Stings</b>	Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites.	0.25	Intermediate
<b>First Aid - Fire Ant Bites and Stings</b>	Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas you're most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings.	0.25	Intermediate
<b>First Aid - Flying Insect Stings</b>	Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they aren't aggressive and they don't seek to sting humans. However, when stings do occur, they're typically minor and require only limited first aid. In other cases, however, especially if the person who's stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, you'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic.	0.25	Intermediate
<b>First Aid - Tick Bites</b>	Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, you'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite.	0.25	Intermediate
<b>Night Shift Safety</b>	Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual work shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night.	0.3	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Safety Management: Emergency Action Plans</b>	This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan.	0.25	Intermediate
<b>Fire Safety</b>	Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate
<b>Fire Extinguisher Safety</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.73	Intermediate
<b>Shoulder Injury Prevention</b>	In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours.	0.5	Intermediate
<b>Mounting and Dismounting Heavy Equipment</b>	Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. Mounting and dismounting often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment.	0.25	Intermediate
<b>Safety Management: Root Cause Analysis</b>	How many times have you thought a problem was fixed only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used.	0.25	Intermediate
<b>Safety Management: Safety Inspections and Observations</b>	Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations.	0.25	Intermediate
<b>Safety Management: Root Causes of Human Behavior</b>	Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems.	0.5	Intermediate
<b>Safety Management: Events and Causal Factors Analysis</b>	Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors.	0.25	Intermediate
<b>Safety Management: Change Analysis</b>	Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis.	0.25	Intermediate
<b>Safety Management: Task Analysis</b>	When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis.	0.25	Intermediate
<b>Safety Management: Barrier Analysis</b>	Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis.	0.25	Intermediate
<b>Crane Hand Signals</b>	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
<b>NPDES Wastewater Discharge Permits</b>	Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects waters of the United States (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course.	0.5	Intermediate
<b>Pallet Jack Safety</b>	A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack.	0.25	Intermediate
<b>Active Shooter Response</b>	An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers.	0.25	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): 1910.119 Overview and Auditing</b>	The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection.	1	Intermediate
<b>Exit Routes, Emergency Action Plans &amp; Fire Prevention Plans</b>	A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that will help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes.	1	Fundamental
<b>Process Safety Management (PSM): An Overview</b>	This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM.	1	Intermediate
<b>Process Safety Management (PSM): Process Hazard Analysis</b>	Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis.	0.5	Intermediate
<b>Process Safety Management (PSM): Mechanical Integrity</b>	Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements.	0.5	Intermediate
<b>Process Safety Management (PSM): Management of Change</b>	Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode.	0.5	Intermediate
<b>Process Safety Management (PSM): Process Safety Information</b>	Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed.	0.5	Intermediate
<b>Oil Spill Responses in Facilities</b>	The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill.	1	Intermediate
<b>Benzene: Safe Handling &amp; Storage</b>	This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training.	1	Intermediate
<b>Ethylene Oxide Safety</b>	This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided.	1	Intermediate
<b>Hydrogen Fluoride Safety</b>	HF acid is used throughout industry every day, and in most cases, without ill affect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed.	1	Fundamental
<b>The Hazards of Oxygen and Oxygen Enrichment</b>	This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage.	1	Intermediate
<b>Triethylaluminium Safety Awareness</b>	This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE.	1	Intermediate
<b>Nitrogen Safety Awareness</b>	Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others.	1	Intermediate
<b>Safety Management</b>	Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility.	1	Intermediate
<b>Gas Pipelines - Public Awareness</b>	Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162.	1	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Toxic Substance Control Act (TSCA) Compliance</b>	With new chemicals and products being introduced into the marketplace on a daily basis, it is imperative that manufacturers properly identify and evaluate new products prior to being released for use. This course will discuss how the Environmental Protection Agency (EPA) regulates polychlorinated biphenyls (PCBs) use in the United States. In addition, this course will discuss compliance strategies based on the Toxic Substance Control Act's sections and titles.	1	Fundamental
<b>R &amp; D Waste Management</b>	This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory.	1	Intermediate
<b>R &amp; D Chemical Hygiene</b>	Significant injuries, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory.	1	Intermediate
<b>Fuel and Combustion Systems Safety - What You Don't Know Can Kill You!</b>	Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Combustion Basics</b>	Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Natural Gas Piping Basics</b>	Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Supply System Issues</b>	Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning</b>	Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks</b>	Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: People</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks</b>	Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Business Contingency Planning</b>	Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Process Safety Management (PSM): Employee Participation</b>	The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training.	0.5	Intermediate
<b>Process Safety Management (PSM): Operating Procedures</b>	Methyl isocyanide, aldricarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Process Safety Management (PSM): Training</b>	On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Process Safety Management (PSM): Contractors</b>	On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations.	1	Intermediate
<b>Process Safety Management (PSM): Pre-Startup Safety Review</b>	On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation.	1	Intermediate

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): Hot Work Permits</b>	In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can include welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations.	1	Intermediate
<b>Process Safety Management (PSM): Incident Investigations</b>	There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Emergency Planning &amp; Response</b>	Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Compliance Audits</b>	Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements.	1	Intermediate
<b>Process Safety Management (PSM): Trade Secrets</b>	There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safety management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information.	0.5	Intermediate
<b>Unstable, Reactive, and Energetic Compounds</b>	Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity.	0.5	Intermediate
<b>EHS Regulatory Overview</b>	Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations.	1	Intermediate
<b>Ladder Safety</b>	How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders.	0.5	Intermediate
<b>Legionella Prevention and Control</b>	In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency.	0.5	Intermediate
<b>Assessing Occupational Exposure</b>	Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate acceptable from unacceptable exposures, and discuss ways to control unacceptable exposures. This course will introduce comprehensive strategies to best manage risk and resources.	0.5	Intermediate
<b>Eye and Face Protection</b>	Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment.	1	Intermediate
<b>Explosive and Flammable Chemicals</b>	A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented.	1	Intermediate



## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>HAZWOPER: Operations</b>	OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed, Emergency plans and hazardous waste informational sources, Responses to various hazardous waste sources, Medical surveillance programs, Site monitoring, engineering controls and work practices, Personal Protective Equipment (PPE)	1	Intermediate
<b>Irritants, Corrosives and Sensitizers</b>	In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace.	1	Intermediate
<b>American Chemistry Council's Responsible Care Program</b>	In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program.	1	Intermediate
<b>Transporting Hazardous Materials</b>	Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them. In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials.	0.5	Intermediate
<b>Ergonomics Economics</b>	What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings.	0.5	Intermediate
<b>Walking and Working Surfaces</b>	Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs.	0.5	Intermediate
<b>New Employee Safety Orientation</b>	All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace.	0.5	Intermediate
<b>First Responder Operations Level Refresher</b>	This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics.	8	Intermediate
<b>Occupational Safety Training: Introduction to OSHA</b>	Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment.	0.5	Intermediate
<b>OSHA 10 Hour Construction Program</b>	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA, Electrical Safety, Fall Protection, Struck-By & Caught-Between Accidents, Personal Protective Equipment (PPE), Scaffolds, Cranes, Hand & Power Tools, Excavations, Materials Storage, Demolition, Hazards in Construction,	10	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Texas Electrician 4 Hour CE Program #5</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #6</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #7</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
<b>Washington Electrical Contractor 4 hour program #1</b>	This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that	4	Intermediate
<b>IICRC 7 Hour General Mold Program</b>	This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	7	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>IICRC 7 Hour Mold Remediation Program #1</b>	This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	7	Fundamental
<b>Kitchen Safety</b>	With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries. Topics covered also include: Prevention of slips, trips and falls, Knife use and safety, Kitchen machinery, Fire and burn prevention, Chemical and hazardous materials	0.25	Fundamental
<b>The Safe Operation of Utility Carts</b>	Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include: Daily Inspections (tires, fluids, steering, obstacles) Load limits Occupant & Pedestrian safety Speeding, skidding & slick surfaces Turns, center of gravity & blind spots Backing up, ramps and parking Rules for riders	0.15	Fundamental
<b>Preventing The Spread Of Contagious Illness</b>	This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas, Special MRSA precautions, Responding to a potential infection, Medical diagnosis and treatment of contagious illnesses	0.25	Fundamental
<b>Bloodborne Pathogens for Custodians</b>	Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are, Diseases that could be transmitted, Potential exposure routes, How to protect yourself from exposure	0.25	Fundamental
<b>WSI - Groundskeeping Safety</b>	After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training.	0.25	Fundamental
<b>Baler Safety</b>	Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include :Basic safety rules for baler use, Pre-use inspection, Standard operating procedures, Safely removing the baled cardboard	0.15	Fundamental
<b>Box Cutter Safety</b>	Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe. Topics covered also include: Safe body positioning, Proper storage of the box cutter, Blade disposal, Safe blade changing techniques	0.1	Fundamental
<b>Heavy Truck Braking System and Braking Techniques</b>	The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system.	0.25	Fundamental
<b>Safe Backing of Tractor Trailer Rigs</b>	Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing.	0.25	Fundamental
<b>Bobtailing and Jackknifing</b>	Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached.	0.25	Fundamental
<b>Safe Food Handling</b>	According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: Food-borne illnesses, Time and temperature control, Personal hygiene Preventing contamination Cleaning and sanitizing equipment and utensils, Preventing cross contamination, Housekeeping and maintenance.	0.25	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Tree Trimming Safety</b>	Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job. Topics covered also include: Saws, axes, and pruning tools Chain saw use Personal protective equipment Safety belts, climbing spikes, and harnesses Working from ladders, boom trucks or aerial baskets Planning and other considerations that need	0.25	Fundamental
<b>Chain saw Safety</b>	Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program.	0.25	Fundamental
<b>Chain saw Accidents - The Consequences</b>	Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them.	0.15	Fundamental
<b>Shop Safety</b>	The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety....your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting	0.1	Fundamental
<b>Security Begins At The Front Desk</b>	Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy, Human Trafficking, Emergency Response, Key Control	0.1	Fundamental
<b>Clean And Safe: Restrooms</b>	Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel.	0.1	Fundamental
<b>Backhoe &amp; Front End Loader Safety</b>	Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, Power-Point presentation, end of course quiz, attendance log, and completion certificate.	0.25	Fundamental
<b>Janitorial Safety</b>	Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention, Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals	0.25	Fundamental
<b>Commercial Kitchen Fire Prevention</b>	Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems, How to operate and inspect these systems, The importance of keeping flues and appliances grease-free, Common sense tips to help employees remain safe	0.1	Fundamental
<b>Property Management Safety - Employee Slips and Falls</b>	Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Property Management Safety - Fire Prevention</b>	Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Property Management Safety - Personal Protective Equipment</b>	During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Property Management Safety - Resident Safety</b>	In every property management environment, nothing is more important than the safety of your residents. There a many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions.	0.1	Fundamental

## Health, Safety & Environment Premium (Continued)

Title	Description	Hours	Level
<b>Property Management Safety - Resident Slips and Falls</b>	When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions.	0.1	Fundamental
<b>Bed Bugs: Facts And Prevention</b>	Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate

# Facilities Management & Maintenance Complete

Title	Description	Hours	Level
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Site and Building Services</b>	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Special Processes and Building Uses</b>	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Fire Code®: Significant Changes</b>	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
<b>2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes</b>	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>2017 NEC Changes: Communications Systems</b>	Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables.	1	Intermediate
<b>2017 NEC Changes: Special Equipment</b>	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate
<b>2017 NEC Changes: A New Process and Five New Articles</b>	The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids.	1	Intermediate
<b>2017 NEC Changes: Appliances and Equipment</b>	Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners.	1	Intermediate
<b>2017 NEC Changes: Branch Circuit, Feeder and Services</b>	Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	2	Intermediate
<b>2017 NEC Changes: Conductors and Wiring Methods</b>	Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT, 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays).	1	Intermediate
<b>2017 NEC Changes: Enclosures and Boxes</b>	Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2017 NEC Changes: Hazardous Locations</b>	Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	1	Intermediate
<b>2017 NEC Changes: Overcurrent Protection and Grounding &amp; Bonding</b>	Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others.	1	Intermediate
<b>2017 NEC Changes: Receptacles and Switches</b>	How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles.	1	Intermediate
<b>2017 NEC Changes: Special Occupancies</b>	The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy</b>	This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	1	Intermediate
<b>2020 NEC® Changes: Branch Circuit GFCI Protection</b>	Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210.	1	Intermediate
<b>2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures</b>	This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	1	Intermediate
<b>2020 NEC® Changes: Devices, Lighting, and Gear</b>	This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	1	Intermediate
<b>2020 NEC® Changes: Equipment for General Use</b>	This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries.	1	Intermediate
<b>2020 NEC® Changes: Focus on Wiring Methods</b>	This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings.	1	Intermediate
<b>2020 NEC® Changes: General Requirements</b>	The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space.	1	Intermediate
<b>2020 NEC® Changes: Overvoltage and Grounding &amp; Bonding</b>	This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications.	1	Intermediate
<b>2020 NEC® Changes: Process Review and Updated Articles</b>	This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems.	1	Intermediate
<b>2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems</b>	Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources.	2	Intermediate
<b>2020 NEC® Changes: Special Equipment</b>	Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on under-floor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring.	1	Intermediate
<b>2020 NEC® Changes: Special Occupancies</b>	The National Electrical code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>2020 NEC® Changes: Wiring and Protection</b>	Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection.	2	Intermediate
<b>3-way Communication</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>8-Hour HAZWOPER Refresher</b>	This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover: Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer. Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements.	8	Intermediate
<b>A Leaders Guide to Decision Making</b>	Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course.	0.5	Intermediate
<b>A Manager's Guide to Performance Appraisals</b>	This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements, Descriptions and Evaluation of Competencies, Self Assessment and more. There is a test included at the end of this course.	1	Intermediate
<b>Above ground Storage Tank Requirements (AST)</b>	Any storage container of at least 55 gallons that is completely above ground, partially buried (<10%), or located in a bunker or subterranean vault is considered an above ground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to above ground storage tanks.	0.5	Intermediate
<b>Above ground Storage Tanks, Part 1</b>	This course provides information about several types of above ground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain.	1	Intermediate
<b>Above ground Storage Tanks, Part 2</b>	Process facilities use above ground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers.	1	Intermediate
<b>AC Fundamentals Review</b>	This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person.	1	Intermediate
<b>AC Generator Basics</b>	A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city. The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts).	1	Intermediate
<b>AC Generator Maintenance</b>	The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests.	1	Intermediate
<b>AC Motor Basics</b>	Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions.	1	Intermediate
<b>AC Motor Controller Maintenance, Part 1</b>	This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise.	1	Intermediate
<b>AC Motor Controller Maintenance, Part 2</b>	Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Access 2013: 01-Working with Databases in Access 2013</b>	Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013</b>	Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series.	2.25	Intermediate
<b>Access 2013: 03-Working with Forms in Access 2013</b>	Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 04-Working with Queries in Access 2013</b>	Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 05-Sharing and Protecting Your Data in Access 2013</b>	Dive into making reports with Access 2013. They are the final piece to working with an Access database. There's also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series.	2	Intermediate
<b>Accessibility by Building Type: Multi-Use Facilities</b>	This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Accessibility by Building Type: Universal Residential Design</b>	Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday lifestyle challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>Active Shooter and Other Acts of Targeted Violence</b>	Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders.	1	Fundamental

# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Active Shooter Response</b>	An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers.	0.25	Intermediate
<b>ADA Compliance in Business</b>	The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities.	1.25	Intermediate
<b>ADA Guidelines 2010: Building Blocks</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including: Ground and floor surfaces (302), Changes in level (303), Wheelchair turning space (304), Clear floor space (305), Knee and toe clearances (306), Protruding objects (307), Reach ranges (308), Operable parts (309)	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include: What is effective communication? What are auxiliary aids and services? When is a state or local government required to provide auxiliary aids and services? Who chooses the auxiliary aid or service that will be provided? This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including: 701 General 702 Fire Alarm Systems 703 Signs 704 Telephones 705 Detectable Warnings 706 Assistive Listening Systems 707 Automatic Teller Machines and Fare Machines 708 Two-Way Communication Systems ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including: General (501)Parking Spaces (502)Passenger Loading Zones (503)Stairways (504)Handrails (505)	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including: 601 General 602 Drinking Fountains 603 Toilet and Bathing Rooms 604 Water Closets and Toilet Compartments 605 Urinals 606 Lavatories and Sinks 607 Bathtubs 608 Shower Compartments 609 Grab Bars 610 Seats 611 Washing Machines and Clothes Dryers 612 Saunas and Steam Rooms ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Adobe Acrobat DC Essentials</b>	Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this Uniquely Engaging™ course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions.	3	Fundamental
<b>Adult Learning</b>	People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process.	0.25	Intermediate
<b>Advanced Management Skills</b>	In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand.	5	Intermediate
<b>Advanced Motors</b>	This course on Advanced Motors addresses the more advanced maintenance practices to ensure electric motor long term reliability. An overview of various motor types, construction, and applications is discussed. The NEMA (National Electric Motor Association) mountings and dimensional data of different frame sizes of motors is presented to assist maintenance personnel in the selection and maintenance of facility electric motors. Lastly, energy efficient motors are reviewed to allow a better understanding of how their use can reduce operating costs.	0.5	Advanced
<b>Advanced Project Management: Advanced Project Risk Management</b>	Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control.	2	Advanced

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Advanced Project Management: Advanced Project Scheduling</b>	Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model.	1	Advanced
<b>Advanced Project Management: Converting Strategy Into Action</b>	All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives.	1	Advanced
<b>Advanced Project Management: Executing Complex Programs</b>	In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs.	1	Advanced
<b>Advanced Project Management: Integrated Project Delivery</b>	Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charrette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems	2	Advanced
<b>Advanced Project Management: Managing Project Teams</b>	Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team.	1	Advanced
<b>Advanced Project Management: Project Management in a Dynamic Environment</b>	This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects.	1	Advanced
<b>Advanced Project Management: Project Performance Management</b>	To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects.	1	Advanced
<b>Advanced Project Management: Sustainability in Project Management</b>	Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas.	2	Advanced
<b>Advanced Project Management: The Power of Project Leadership</b>	This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders.	1	Advanced
<b>Advanced Project Management: Understanding the Project, Program, and Portfolio Architecture</b>	Project and construction managers are at the leading edge of delivering benefits to an organization. But how does one's efforts fit in the bigger picture? And why do you even need to know the bigger picture? This interactive, online course will define project, program and portfolio management, as well as explore the key differences and interactions. This course will also introduce you to the concept of benefits realization management and how the project, program, and portfolio hierarchy can be used to bring strategy to life and ensure more successful projects. This course will help professionals both new to, and experienced in, project management. Whether you're new to project management, or have been practicing it for some time, understanding the hierarchy of project, program and portfolio management will help you take your skills to the next level.	1	Advanced

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>AEC Success: 7 Steps for Using LinkedIn® Effectively</b>	LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups.	0.5	Fundamental
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Conflict Resolution in the Workplace</b>	Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations.	1	Fundamental
<b>AEC Success: Designing Presentation Visual Aids</b>	Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids.	0.5	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: Five Steps to Effective E-mail Management</b>	Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails.	0.5	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental
<b>AEC Success: How to Create a Focused, Productive and Low Stress Career and Life</b>	Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus.	0.5	Fundamental
<b>AEC Success: How to Find and/or Become a Mentor</b>	A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship.	0.5	Fundamental
<b>AEC Success: Improving Organization and Productivity</b>	In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management.	0.5	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Obtaining the Right Credentials in Your Career</b>	Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever.	0.5	Fundamental
<b>AEC Success: Strategies for a Successful Interview</b>	We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you stand out amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine!	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Agile Project Management: 01 - Agile Series Overview	What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This course's primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI.	0.25	Intermediate
Agile Project Management: 02 - Traditional vs. Agile Project Management	The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management.	0.75	Intermediate
Agile Project Management: 03 - Agile Manifesto Principles 1 - 6	Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth.	0.75	Intermediate
Agile Project Management: 04 - Agile Manifesto Principles 7-12	At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence.	0.5	Intermediate
Agile Project Management: 05 - Value Driven Project Management	To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value.	1.25	Intermediate
Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects	Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project.	0.75	Intermediate
Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies	This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods.	1.5	Intermediate
Agile Project Management: 08 - Other Less-Common Agile Methodologies	In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts.	1	Intermediate
Agile Project Management: 09 - Planning Agile Projects	Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning.	1.25	Intermediate
Agile Project Management: 10 - Estimating Agile Projects	Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of.	1.25	Intermediate
Agile Project Management: 11 - Implementing Agile Projects	A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Agile Project Management: 12 - Team Formation and Creating an Agile Environment</b>	There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful.	1.5	Intermediate
<b>Agile Project Management: 13 - Communication in Agile Projects</b>	There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project.	1.5	Intermediate
<b>Agile Project Management: 14 - Increasing Agile Stakeholder Engagement</b>	Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants.	1	Intermediate
<b>Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects</b>	An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product.	1	Intermediate
<b>Agile Project Management: 16 - Testing and Risk Management in Agile Projects</b>	This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback.	1	Intermediate
<b>Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects</b>	There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project.	1	Intermediate
<b>Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects</b>	Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality.	1.25	Intermediate
<b>Agile Project Management: 19 - Continuous Improvement for Management and Project Agility</b>	No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly.	1	Intermediate
<b>Agile Project Management: 20 - PMI Code of Conduct in Agile Management</b>	The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project.	0.5	Intermediate
<b>Air-Purifying Respirators</b>	Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators.	0.5	Intermediate
<b>Air-Supplying Respirators</b>	Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Alert Driving	Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques.	0.25	Intermediate
Alternating Current	Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers.	2	Intermediate
American Chemistry Council's Responsible Care Program	In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program.	1	Intermediate
An Effective Leader's Guide to Time Management	Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes.	0.5	Intermediate
An Entrepreneur's Guide to Networking	Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'.	0.5	Intermediate
An Introduction to Fitwel®	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®	2	Fundamental
Anatomy of Construction Defects	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate
Anhydrous Ammonia Awareness	Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures.	0.25	Intermediate
Anti-Harassment Training for All Employees - California	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	1	Intermediate
Anti-Harassment Training for All Employees - Maine	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine.	1	Intermediate
Anti-Harassment Training for All Employees - New York City and State	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City.	1.5	Intermediate
Anti-Harassment Training for All Employees - Non-State Specific	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Anti-Harassment Training for Supervisors and Managers - California</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Connecticut</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - New York City and State</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City.	1	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Non-State Specific</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state.	1	Fundamental
<b>Appraising Performance</b>	Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment.	3.5	Intermediate
<b>Arc Flash Safety</b>	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices.	0.53	Intermediate
<b>"Are You Ready?" Checklist</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Are You Ready? Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Asbestos Awareness</b>	Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma.	0.5	Intermediate
<b>Asbestos Awareness - 2 Hour Training</b>	Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
<b>ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Assessing Occupational Exposure</b>	Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate acceptable from unacceptable exposures, and discuss ways to control unacceptable exposures. This course will introduce comprehensive strategies to best manage risk and resources.	0.5	Intermediate
<b>Asset Condition Management: Alignment and Balancing Training</b>	Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures.	1	Intermediate
<b>Asset Condition Management: Motor Testing</b>	Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors.	1	Intermediate
<b>Asset Condition Management: Setting Up an Oil Analysis Program</b>	Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel.	0.5	Intermediate
<b>Asset Condition Management: Vibration Analysis Training</b>	Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring.	1	Intermediate
<b>Back Injury Prevention</b>	If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries.	0.38	Intermediate
<b>Backhoe &amp; Front End Loader Safety</b>	Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipment capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate.	0.25	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Backing Up Safely	How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards.	0.25	Intermediate
Baler Safety	Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include: Basic safety rules for baler use Pre-use inspection Standard operating procedures Safely removing the baled cardboard	0.15	Fundamental
Banding Safety	For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads.	0.5	Intermediate
Basic Business Finance	Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business.	1	Fundamental
Basic Electrical Maintenance	Do you know how to troubleshoot common electrical systems? This interactive online course on basic electrical maintenance will equip you with the knowledge you need to safely identify and troubleshoot common and standard electrical systems and components found in commercial buildings. Whether you're responsible for performing the maintenance, supervising maintenance personnel, or planning projects in this area, this information is critical for you to be aware of, and will allow you to lead and guide others in your organization. Knowledge of the typical electrical components covered in this course will be critical for your personal safety, and the safety of others that you're working around. Improper actions or conditions encountered with these devices and components could result in serious unsafe conditions, including fire hazards, electrical shock, and even death. This course will show you how to avoid these conditions while operating and resetting GFCI receptacles and while replacing ballasts, light switches, and electrical receptacles.	0.5	Fundamental
Basic Electrical Theory	Do you know the difference between current and voltage? This course on basic electrical theory will equip you with the knowledge you need to handle various calculations involving electrical circuits, both AC (alternating current) and DC (direct current). You will learn how to calculate voltage and electrical power in a circuit using Ohm's Law and Watt's Law. In this interactive online course, we'll discuss how to determine the electrical resistance for the wiring in a circuit and the size power unit that will be needed to drive a piece of equipment. Finally, you'll learn the difference between single- and three-phase power.	0.5	Fundamental
Basic Electrical Troubleshooting	In this interactive online course, you'll learn basic electrical troubleshooting concepts. You'll learn the difference between a step-up and a step-down transformer, how to test for unbalanced loads and blown fuses, and how to tell if the insulation on a wire is adequate so it doesn't present a hazard. You'll be introduced to tools such as a clamp-on ammeter, megohmmeter and voltmeter used in the practice of electrical troubleshooting. The information covered in this course can be applied at your facility for safe work on large and small electrical components.	0.5	Fundamental
Basic Electricity Review	This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism.	1	Intermediate
Basic Emergency Power Systems	In this country, as well as in most other developed countries, we have gotten used to the conveniences and comforts that electricity provides. Much, if not most, of our modern technology is heavily, or totally dependent on electricity as its energy source. This interactive online course covers the basics of Standby Electrical Power Systems. These are power systems which remain in a standby mode (meaning ready to go) just-in-case the utility-supplied electricity to a campus, a building, or an individual room fails, for whatever reason.	0.5	Fundamental
Basic Rigging, Part 1	The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components.	1	Intermediate
Basic Rigging, Part 2	Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures.	1	Intermediate
Basics of Leadership: 01-Leadership Challenges	Leaders in the 21st century must accommodate themselves to today's rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership.	1	Intermediate
Basics of Leadership: 02-Changes in Corporate Culture	A company's organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership.	1	Intermediate
Basics of Leadership: 03-Keeping Employees Energized	Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3.	1	Intermediate
Basics of Leadership: 04-Knowledge Management	Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in today's workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Basics of Leadership: 05-Elements of Change in Business</b>	Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 06-Leadership Dynamics</b>	Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series.	1	Intermediate
<b>Batteries</b>	A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps.	1	Intermediate
<b>Battery Acid and Spill Safety</b>	Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases.	0.75	Intermediate
<b>Battery Applications</b>	This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material.	3	Intermediate
<b>Be Proactive! Inclusion Starts With You</b>	An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace.	0.2	Intermediate
<b>Bearings Basics</b>	Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures.	1	Intermediate
<b>Bed Bugs: Facts And Prevention</b>	Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Behavior-Based Safety</b>	Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program.	0.5	Intermediate
<b>Benzene: Safe Handling &amp; Storage</b>	This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training.	1	Intermediate
<b>Better Business Writing</b>	Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world.	0.75	Intermediate
<b>Bioremediation Tactics</b>	Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose.	0.5	Intermediate
<b>Blind Spots: Diversity and Inclusion</b>	Is your biology working against you? This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns.	0.5	Fundamental
<b>Blocking and Cribbing for Heavy Equipment</b>	Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations.	0.35	Intermediate
<b>Bloodborne Pathogens</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.43	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Bloodborne Pathogens for Custodians</b>	Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are Diseases that could be transmitted Potential exposure routes How to protect yourself from exposure	0.25	Fundamental
<b>Bloodborne Pathogens for Hospitality</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bloodborne Pathogens for Schools</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bobtailing and Jackknifing</b>	Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached.	0.25	Fundamental
<b>Boiler Fundamentals</b>	Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Boilers: Combustion, Water, and Steam</b>	This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Box Cutter Safety</b>	Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe. Topics covered also include: Safe body positioning Proper storage of the box cutter Blade disposal Safe blade changing techniques	0.1	Fundamental
<b>Brain Bites - Email Management</b>	From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You. More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce.	0.5	Fundamental
<b>Brain Bites - Empathy: The Key to Active Listening</b>	Show that you are actively listening by using empathy. You have probably heard empathy described as feeling someone's pain, but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Let Them Know You're Listening</b>	Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Organizing Your Files</b>	How To Stop Wasting Up To Two Hours Per Day Looking For Information. On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Brain Bites - Sharing a Workspace</b>	Learn to safely share a workspace to keep you and your coworkers healthy. The spread of COVID-19 led many of-fices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Staying Safe Online</b>	Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Time Management</b>	Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Using Windows 10</b>	Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.75	Fundamental
<b>Brain Bites - Writing Effective Emails</b>	Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites: Microsoft Teams Meetings</b>	Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brayton Cycle Analysis</b>	The ideal cycle for the simple gas turbine is the Brayton Cycle, also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the T - s diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs.	1	Intermediate
<b>Browser Security Basics</b>	A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices.	0.25	Fundamental
<b>Building Automation Systems (BAS) Architecture</b>	BAS: What is it and how does it simplify our lives? Building automation describes the advanced functionality provided by the control system of a building. A building automation system (BAS) is an example of a distributed control system. The control system is a computerized, intelligent network of electronic devices designed to monitor and control the mechanical, electronics, and lighting systems in a building. This interactive online course will discuss the BAS topology and will include topics such as primary and secondary bus, as well as analog and digital input and output.	0.5	Fundamental
<b>Building Automation Systems (BAS) Operations</b>	BAS: What is it and how does it help us identify equipment failures and reduce energy? Building Automation System or BAS Operations are one of the most critical tasks for controlling of any building. It allows the facility to quickly identify equipment failures and reduce energy usage by implementing smart controls for the building. This interactive online course is intended for building maintenance, HVAC technicians, and Facility Managers. It will cover the fundamentals of automation equipment and explain how the BAS can assist the user in identifying problems and possible solutions.	0.5	Fundamental
<b>Building Design and Construction Features for Fire Protection</b>	Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost \$12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems.	1	Fundamental
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Leadership Capability</b>	As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization.	0.5	Intermediate
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Business Communication Fundamentals</b>	In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate.	0.75	Intermediate
<b>Business Dining Etiquette</b>	Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal.	0.5	Intermediate
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Business Ethics</b>	Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company.	0.5	Intermediate
<b>Business Ethics: Quick Refresh</b>	Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified.	0.5	Intermediate
<b>Business Execution: 01-Execution Strategies</b>	Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go.	1.5	Intermediate
<b>Business Execution: 02-Inspiring Workplace Excellence</b>	When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees.	1	Intermediate
<b>Business Execution: 03-Turning Ideas into Actions</b>	There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure.	1.5	Intermediate
<b>Capacitors, Part 1</b>	Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits.	1	Intermediate
<b>Capacitors, Part 2</b>	Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested.	1	Intermediate
<b>Carbon Tracking/Reduction Strategies for Facility Design and Operations</b>	Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like net zero energy are gaining mainstream traction and help account for the design/reuse of facility's energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three Scopes, and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Carpentry Basics</b>	Did you know a constantly changing physical environment increases the chances of being injured? Carpentry is a skilled trade in which the primary work performed is the cutting, shaping and installation of building materials, primarily wood, during the construction of buildings and other structures. Carpentry typically occurs in a construction area. This interactive online course will cover some of the skills needed to practice good carpentry.	0.5	Fundamental
<b>Carpentry Basics: Drywall Repair</b>	In some situations, you may have to repair drywall that has been damaged or repair drywall that was improperly installed by someone else. This interactive online course will explain and describe the tools, materials, finishing techniques and procedures used in repairing drywall.	0.5	Fundamental
<b>Carpentry Basics: Painting</b>	Did you know painting involves various factors such as the composition of paint; the various paint systems, and the procedures for preparing a surface and applying the paint correctly? In addition, choosing the proper tools for a job from start to finish is required. This interactive online course will discuss the correct methods, tools, and procedures to perform a good paint job.	0.5	Fundamental
<b>Carpentry Basics: Tools and PPE</b>	Hand and power tools must be used properly and maintained at all times. Tools that may have been damaged or do not work properly can be dangerous to use. The tools need to be clean, dry and well-maintained. This interactive online course will explain the different types of hand and power tools used in general repair situations and the proper care and use of them to promote safe practices within your facility.	0.5	Fundamental
<b>Carpentry Safety</b>	Did you know personal protective equipment is considered the last line of defense? You will be introduced to several hazards and risks associated with performing basic carpentry tasks. Carpentry involves the use of hand and power tools, and equipment, to complete repairs on items such as cabinets, windows, flooring, and other parts of a building structure. This interactive online course will provide recommended safe work practices to avoid injury and illness.	0.5	Fundamental
<b>Cell Phone Use in the Workplace</b>	Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use.	0.5	Intermediate
<b>Centrifugal Compressors</b>	This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components.	1	Intermediate
<b>Centrifugal Pump Components</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump.	0.5	Intermediate
<b>Centrifugal Pump Curves and Theory</b>	A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task.	0.5	Intermediate
<b>Centrifugal Pump Fluid Mechanics</b>	Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements.	0.5	Intermediate
<b>Centrifugal Pump Operations and Maintenance</b>	Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump.	0.5	Intermediate
<b>Centrifugal Pump Selection and Sizing</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs.	0.5	Intermediate
<b>Centrifugal Pump System Components and Design</b>	The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance.	0.5	Intermediate
<b>Chain saw Accidents - The Consequences</b>	Chain saw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chain saw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chain saw accidents, this video hammers home the seriousness of what can happen when using a chain saw, and the importance of following proper safety procedures at all times during chain saw use. By demonstrating the many ways a chain saw accident can occur your employees will walk away trained in how to prevent them.	0.15	Fundamental
<b>Chain saw Safety</b>	Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program.	0.25	Fundamental
<b>Change Management</b>	Change is a constant in today's world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes.	0.5	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Chemical Unloading Basics</b>	All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed.	0.25	Intermediate
<b>Chlorine Dioxide Awareness</b>	This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures.	0.25	Intermediate
<b>Clean And Safe: Restrooms</b>	Clean restrooms are significant. But, this video isn't just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel.	0.1	Fundamental
<b>Clean Water Act Section 404 Permits</b>	The Clean Water Act (CWA) protects waters of the United States (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit.	0.75	Intermediate
<b>Clear Communication</b>	Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Coaching Job Skills: 01-Determining Training Or Coaching</b>	Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees.	1	Intermediate
<b>Coaching Job Skills: 02-Your Path to Training New Skills</b>	Learn and apply the five-step process for training your team members on new skills.	1	Intermediate
<b>Coaching Job Skills: 03-Your Path to Coaching Existing Skills</b>	Learn and apply the five-step process for coaching your team members on existing skills.	1	Intermediate
<b>Coaching Job Skills: 04-Mastering Training New Skills</b>	Practice Training New Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 05-Mastering Coaching Existing Skills</b>	Practice Coaching Existing Skills in a full scenario situation.	1	Intermediate
<b>Coaching Job Skills: 06-Health Check</b>	Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment.	1	Intermediate
<b>Coaching with Confidence</b>	LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams.	6.5	Intermediate
<b>Coastal Engineering: Tsunamis</b>	What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Cold Stress</b>	People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress.	0.38	Intermediate
<b>Collaborative Communication: 01-Communicating to Your Manager</b>	Learn the background key concepts to effective communication to your boss or supervisor.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Collaborative Communication: 02-Your Manager's Communication Style</b>	Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager.	1	Intermediate
<b>Collaborative Communication: 03-Your Path to Communicating Up</b>	Learn and apply the five-step process for communicating to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 04-Mastering Communicating Up</b>	Practice Communicating Up in a full scenario situation.	1	Intermediate
<b>Collaborative Communication: 05-Communicating Up Health Check</b>	Test your ability to apply Communicating Up concepts in this skills-based scenario assessment.	1	Intermediate
<b>Combustible Dusts</b>	It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and prevention measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions.	0.25	Intermediate
<b>Combustion Analysis</b>	Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichiometric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented	1	Intermediate
<b>Commercial Explosives Safety</b>	An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal.	0.43	Intermediate
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Kitchen Fire Prevention</b>	Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems, How to operate and inspect these systems, The importance of keeping flues and appliances grease-free, Common sense tips to help employees remain safe	0.1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental
<b>Communication Skills for Supervisors</b>	Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Company Layoffs and Downsizing	Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved.	0.75	Intermediate
Compressed Air Systems: Introduction to Performance Improvement	Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
Compressed Gas Cylinder Safety	Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed.	0.38	Intermediate
Compressible Flow Components Analysis	The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends.	1	Intermediate
Compressors: Centrifugal and Axial	This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices.	2	Intermediate
Compressors: Operation of Centrifugal and Axial Types	This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors.	2	Intermediate
Compressors: Positive Displacement	This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors.	2	Intermediate
Computer Room Air Conditioning (CRAC) Systems: Design and Operation	This course is intended to be a primer to help any system operator or maintenance person to better understand some of the aspects and sometimes subtle nuances of computer room A/C systems, as well as the ancillary equipment and systems which normally support the A/C system. This online interactive course is by no means an in-depth study of computer room A/C systems, but strictly an introduction into the specialized world and nature of computer room A/C systems. By studying the fundamental information presented herein, you will gain enough information to be able to assist in keeping your company's computers and servers fully, and reliably, operational.	0.5	Intermediate
Condensate Recovery and Steam Traps	Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses.	0.5	Intermediate
Conductors	Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications.	1	Intermediate
Confined Space Entry - Permit Required	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space.	0.67	Intermediate
Confined Space Entry Awareness	A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry.	0.5	Intermediate
Confined Spaces in Construction	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
Conflict Management	When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Conflict Resolution</b>	Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace.	0.7	Intermediate
<b>Conflicting and Non-Existent Accessibility Standards</b>	What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility.	1	Fundamental
<b>Construction of AC and DC Circuits</b>	This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit.	1	Intermediate
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>Construction Site Stormwater Runoff Control</b>	Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP).	0.5	Intermediate
<b>Contactors and Relays</b>	Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems.	2	Intermediate
<b>Conveyor Safety</b>	Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe.	0.5	Intermediate
<b>Cooling Basics</b>	Did you know there are two types of cooling systems used in HVAC applications? Cooling systems remove heat from air - sensible heat from the gases in air and latent heat from the water vapor in air - in order to produce the desired temperatures and humidity levels in enclosed spaces. This interactive online course covers sensible heat and latent heat, British thermal units, the three laws of thermodynamics, and the cooling equipment that is used in HVAC systems.	0.5	Fundamental
<b>Cooling System Maintenance</b>	Cooling systems remove heat from building air in order to produce the desired temperatures and humidity levels in enclosed spaces. These electro-mechanical systems require routine inspections and maintenance to keep them functioning properly. This interactive online course covers how to inspect and maintain cooling system drive belts, and best practices for greasing bearings and cleaning of cooling system coils.	0.5	Fundamental
<b>Cooling Theory</b>	How do you properly cool a building? Cooling systems are used to cool and condition the air in rooms and building. To do this, they must remove heat from the air. How much heat needs to be removed to reach the desired temperature? What about humidity - the amount of water vapor in the air? Humidity affects how much heat we feel so it must also be addressed. This interactive online course will address these and other cooling system-related topics and issues.	0.5	Fundamental
<b>Cooling: Hot &amp; Cold Call Basics</b>	Who turned down the thermostat? Why is it so cold in here? Individuals who respond to hot and cold calls made by uncomfortable building occupants must have a certain set of skills, including a thorough understanding of the heating/cooling system in question, training in problem-solving or troubleshooting techniques, and people skills. This interactive online course will discuss how to methodically approach cooling system-related complaints and problems, as well as desirable personality traits and useful problem-solving techniques for effective customer service representatives.	0.5	Fundamental
<b>Co-worker Coaching</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Crane and Hoist Rigging Safety</b>	Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE).	0.53	Intermediate
<b>Crane Hand Signals</b>	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
<b>Crane Lift Planning</b>	When involved with a lift have you ever asked yourself, I wonder if the crane is big enough? Or is the rigging set up properly? Or is it safe to move loads over or under a power line?. If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Create a Windows App Using Free Tools and No Coding	Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do not have the time to learn a programming language. Those obstacles should not stop us from publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very own Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.'	2.5	Intermediate
Creating a Code of Conduct	Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct.	0.5	Intermediate
Creating Word Templates	Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!	0.5	Fundamental
Critical Facilities - Emergency Electric Power	Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events. This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable.	2	Fundamental
Critical Thinking and Problem Solving	Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights.	0.6	Intermediate
Crystalline Silica Awareness	Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it.	0.5	Intermediate
Cut and Puncture Wound Prevention	Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place.	0.5	Intermediate
Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture	With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment.	1	Fundamental
Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning	Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages. In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management.	0.5	Fundamental
Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards	When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data.	0.5	Fundamental
Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks	Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. In this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use	Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data.	0.5	Fundamental
Cybersecurity Awareness for Employees: End-User Best Practices	We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses.	0.5	Fundamental
Cybersecurity Awareness for Employees: Security Awareness Essentials	In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks.	0.5	Fundamental
Cybersecurity Awareness for Employees: Social Engineering	Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it.	0.5	Fundamental
Cybersecurity Overview	The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible.	0.25	Fundamental
Dangers of Distracted Driving	Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving.	0.25	Intermediate
Data Centers: Operations & Maintenance, Upgrades, and Expansions	If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.	1	Intermediate
Data Centers: Trends, Technologies, and Efficiencies	Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.	1	Intermediate
DC Fundamentals Review	The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory.	1	Intermediate
DC Generator Basics	A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed.	1	Intermediate
DC Motor Controller Maintenance, Part 1	This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction.	1	Intermediate
DC Motor Controller Maintenance, Part 2	This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
DC Motor Maintenance	Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor.	1	Intermediate
DC Power in the Data Center	Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today.	1	Intermediate
Decision Making	Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Delivery Truck Maintenance	Many businesses depend heavily on their fleet of vehicles. In some businesses, such as package or propane delivery, or taxis, the fleet really is the business. In other cases, such as trades like electricians and plumbers, the vehicle is somewhat secondary to the actual job being performed, but no less important. In order for businesses which rely on vehicles to thrive, those vehicles which make up the fleet need to be able to operate safely and properly as close to 100% of the time as possible.	0.5	Intermediate
Design of Utility Infrastructure	Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities.	2	Fundamental
Designing and Specifying Pervious Concrete	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
Designing Beautiful Documents	Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents.	0.5	Fundamental
Designing Foundation Repairs	What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair.	2	Intermediate
Designing PEX Plumbing Systems to Optimize Performance and Efficiency	What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance.	1	Fundamental
Developing an Employee Safety Training Program	People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Developing and Implementing an EPA RMP	Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68. To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program.	2	Fundamental
Developing Performance Goals & Standards: 01- The Value of Planning	Experience the importance of planning and developing goals for your team.	1	Intermediate
Developing Performance Goals & Standards: 02-Creating Performance Standards	Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed).	1	Intermediate
Developing Performance Goals & Standards: 03- Your Path to Developing Performance Goals and Standards	Learn and apply the five-step process for setting and discussing team member performance goals.	1	Intermediate
Developing Performance Goals & Standards: 04-Mastering Developing Performance Goals and Standards	Practice Developing Performance Goals and Standards in a full scenario situation.	1	Intermediate
Developing Performance Goals & Standards: 05-Developing Performance Goals and Standards Health Check	Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment.	1	Intermediate
Developing Your Leadership Style	Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done.	1	Intermediate
Diagrams: Blueprints	This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints.	2	Intermediate
Digital Transformation: Benefits of a Digital Corporate Culture	When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits.	0.2	Intermediate
Digital Transformation: Challenges Organizations Face by Not Embracing Technology	Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges.	0.2	Intermediate
Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations	When integrating digital technology into a business infrastructure, it's important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations.	0.2	Intermediate



# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation</b>	Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: Communication, Productivity, Marketing, Security	0.2	Intermediate
<b>Digital Transformation: Four Steps to Implementing a Digital Transition</b>	Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition its important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course.	0.2	Intermediate
<b>Digital Transformation: Things to Consider Before Making Changes</b>	All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes.	0.2	Intermediate
<b>Digital Transformation: What is Big Data?</b>	Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries.	0.2	Intermediate
<b>Digital Transformation: What is Blockchain?</b>	Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why its gaining popularity, and how its being used in organizations today.	0.2	Intermediate
<b>Digital Transformation: What is Digital Transformation?</b>	Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how its impacting almost every organization.	0.2	Intermediate
<b>Digital Transformation: What is the Internet of Things?</b>	We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact.	0.2	Intermediate
<b>Direct and Alternating Current</b>	Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power.	1	Intermediate
<b>Direct Digital Controls (DDC) Building Automation Basics</b>	Did you know a building automation system allows building related equipment to be centrally monitored, adjusted and controlled? Building automation systems take in analog and digital information from sensors, make decisions based on time of day and desired setpoints, and send commands to controllers and actuators. Centralized programming and control optimize building energy usage and occupant comfort. This interactive online course covers how maximum use of the various components of a BAS system can produce cost saving opportunities for your facility.	0.5	Fundamental
<b>Disabilities in the Workplace</b>	A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination.	0.5	Intermediate
<b>Discipline</b>	Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Discrimination in the Workplace</b>	100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace.	0.25	Intermediate
<b>Discrimination Prevention</b>	Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination.	0.5	Intermediate
<b>Distillation: Control Systems</b>	What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products. In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed. During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Diversity in the Workplace	Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers.	0.25	Intermediate
Doors and Hardware Basics	Do you know how to fix a door that is sticking? How about one that closes too fast? This interactive online course will describe the fundamentals of commercial door hardware and provide the knowledge to perform basic troubleshooting and repair techniques for some common problems.	0.5	Fundamental
Doors and Hardware Maintenance and Repair	Commercial doors must be strong and durable to withstand frequent use, and like any other building component, they require maintenance to keep them functioning correctly. This interactive online course will discuss door and door hardware maintenance and repairs associated with commercial building installations.	0.5	Fundamental
DOT Alcohol and Drug Testing for Drivers	Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process.	0.75	Intermediate
DOT CSA Awareness	The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur.	0.75	Intermediate
DOT ERG Introduction	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.25	Intermediate
DOT Hazmat - General Awareness	Regulations related to the transportation of hazardous materials are contained in Title 49 of the U.S. Code of Federal Regulations (CFR). The Hazardous Materials Regulations (HMR) in Parts 171-180 of Title 49 regulate the transportation of hazardous materials in commerce by motor vehicle, rail car, aircraft, or waterborne vessel. The HMR include classification, labeling, packaging, handling, loading and unloading requirements, in addition to standards for hazmat training, incident reporting, hazard communication, and security.	0.75	Intermediate
DOT Hazmat - Highway Carrier Loading and Unloading Requirements	The Hazardous Materials Regulations (HMR) apply to the transportation of hazardous materials in commerce. This includes the movement of these materials, plus all associated loading, unloading, and storage activities. Part 177 of the HMR contains requirements related to the transportation of hazardous materials by private, common, and contract for hire motor carriers. These carriers must also comply with several other Parts of the HMR, and many requirements of the Federal Motor Carrier Safety Regulations (FMCSR).	0.5	Intermediate
DOT Hazmat - Highway Carrier Segregation Requirements	Certain hazardous materials must be separated from each other during transportation in a manner that prevents commingling if a package failure or leakage were to occur. The segregation requirements for highway hazmat shipments are contained in Section 177.848 of the HMR. These requirements apply only to the Hazard Classes and Divisions listed in the HMRs Segregation Table and only if the materials are in packages that require labeling or placarding, a compartment within a cargo tank, or a portable tank loaded in a container or vehicle.	0.5	Intermediate
DOT Hazmat - In-depth Security	The 2010 Pipeline & Hazardous Materials Safety Administration (PHMSA) Security Rule requires commercial shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan). This course identifies the types and quantities of hazardous materials that are covered by the rule, lists the required elements of and record keeping requirements for Hazardous Materials Security Plans, describes the three types of security that must be addressed by a Security Plan (personnel, route, and unauthorized access), and describes the general and in-depth training requirements for hazmat employees.	0.6	Intermediate
DOT Hazmat - Labeling	The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of marking and labeling is to communicate the hazards and risks of the materials being transported to anyone who could potentially be exposed to them. Labeling refers to the placement of primary and, if applicable, subsidiary hazard labels on the outer package. DOT labeling requirements are contained in Part 172, Subpart E of the HMR.	0.75	Intermediate
DOT Hazmat - Marking	The packaging used to secure hazardous materials during transport typically contains markings and labels to indicate that it contains a hazardous material. The purpose of these markings and labels is to communicate the hazards and risks of the materials being transported to anyone who could be exposed to them. All markings must be legible and durable; clearly visible; written in English; printed on or affixed to the package surface or a label, tag, or sign; and placed away from other markings (such as advertising) that could substantially reduce their effectiveness. DOT marking requirements are detailed in Part 172, Subpart D of the HMR.	0.75	Intermediate
DOT Hazmat - Packaging	The primary function of hazmat packaging is to ensure that hazardous materials remain intact and secure during transportation. All packaging must be designed to ensure that under normal conditions, the contents will not be released and the packaging effectiveness will be maintained as it experiences typical physical stresses, including shocks, vibrations, temperature extremes, and changes in humidity and pressure. The Hazardous Materials Table (HMT) in Section 172.101 of the HMR can be used to determine the non-bulk and bulk packaging requirements, and any conditions for packaging exceptions, for hazardous material shipments.	1	Intermediate
DOT Hazmat - Placarding	The DOT requires marking, labeling, and placarding of hazardous materials being transported in commerce to, from, or within the U.S. The term placarding refers to the placement of large durable versions of hazard labels on transport vehicles, bulk packages, freight containers, unit load devices, and rail cars. The purpose of marking, labeling, and placarding is to communicate the potential dangers of hazardous materials. Placards are especially important to emergency responders, who use this information to initiate protective actions after an incident or accidental release.	0.75	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>DOT HAZMAT - Safety Training</b>	Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT).	0.5	Intermediate
<b>DOT Hazmat - Security Awareness</b>	In 2010, the Pipeline & Hazardous Materials Safety Administration (PHMSA) published a rule modifying the security requirements for the commercial transportation of some hazardous materials. This rule requires shippers and carriers of certain types and quantities of hazardous materials to implement a Hazardous Materials Safety and Security Plan (a.k.a. Security Plan) and provide additional security training to employees. Among other things, they must ensure subject hazmat packages and containers are properly closed and secured, select routes that will minimize damage to or from hazardous materials, conduct background investigations on new employees, confirm the adequacy of carrier Security Plans, and integrate all aspects of the security rule into their normal business activities.	0.5	Intermediate
<b>DOT Hazmat - Shipping Papers</b>	Shippers of hazardous materials including hazardous wastes, hazardous substances, and marine pollutants must prepare and certify shipping papers before offering these materials for commercial transportation to, from, or within the U.S. Shipping papers identify and classify the hazardous materials being shipped, and notify shippers and carriers of their hazards. They help define the protective measures necessary to protect employees, the public, and the environment, and can provide critical information to emergency response personnel.	0.75	Intermediate
<b>DOT Hours of Service Compliance</b>	The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves.	0.75	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Alcohol</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employee's appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing.	1	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Drugs</b>	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employee's appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of DOT-prohibited drug use. This course describes the five DOT-regulated drug classes, including their signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing.	1	Intermediate
<b>DOT Roadside Inspections</b>	Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections.	0.25	Intermediate
<b>Drinking Water Quality - Monitoring &amp; Security</b>	It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties. In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities.	1	Fundamental
<b>Drinking Water Quality - Water Treatment Technology</b>	Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system.	1	Fundamental
<b>Driving Hazard Recognition</b>	Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, you'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely.	0.25	Intermediate
<b>Driving Large Vehicles and Heavy Equipment</b>	Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles cars, vans, SUVs, and pickup trucks have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions.	0.25	Intermediate
<b>Driving Preparation</b>	Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Ductile Iron Pipe	Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Effective Delegation	LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them.	3	Intermediate
Effective Delegation: 01-What to Delegate	Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task).	1	Intermediate
Effective Delegation: 02-Issues in Delegating	See and practice the issues that arise in delegation discussions and how to effectively handle them.	1	Intermediate
Effective Delegation: 03-Your Path to Delegating	Learn and apply the five-step process for delegating tasks to members of your team.	1	Intermediate
Effective Delegation: 04-Mastering Delegating	Practice Delegating in a full scenario situation.	1	Intermediate
Effective Delegation: 05-Delegating Health Check	Test your ability to apply Delegating concepts in this skills-based scenario assessment.	1	Intermediate
Effective Discipline: 01-Taking Disciplinary Action	See and rate examples of disciplinary action and understand the importance of designing messages for the team member.	1	Intermediate
Effective Discipline: 02-The Disciplinary Process and Documentation	Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation.	1	Intermediate
Effective Discipline: 03-Responding to Team Member Reactions	Since team members often react negatively to discipline, practice how you will respond in these situations.	1	Intermediate
Effective Discipline: 04-Your Path to Effective Discipline	Learn and apply the five-step process for effectively disciplining a team member.	1	Intermediate
Effective Discipline: 05-Mastering Effective Discipline	Practice Effective Discipline in a full scenario situation.	1	Intermediate
Effective Discipline: 06-Effective Discipline Health Check	Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment.	1	Intermediate
Effective Presentation Skills	In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation.	1	Intermediate
Efficient Pump Operation	This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency.	1	Intermediate
EHS Regulatory Overview	Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations.	1	Intermediate

# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Electric Pallet Jack Safety	Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures.	0.5	Intermediate
Electric Shock	Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone.	0.5	Intermediate
Electrical 1: Cable Tray	Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors.	2	Intermediate
Electrical 1: Commercial and Industrial Wiring	This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors.	2	Intermediate
Electrical 1: Electrical Diagrams	This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway.	2	Intermediate
Electrical 1: Electrical Safety	The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment.	2	Intermediate
Electrical 2: Boxes and Fittings	Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations.	2	Intermediate
Electrical 2: Circuit Breakers and Fuses	Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses.	2	Intermediate
Electrical 2: Electrical Lighting	Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures.	2	Intermediate
Electrical 2: Grounding	Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective.	2	Intermediate
Electrical 2: Installation of Electrical Services	Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service.	2	Intermediate
Electrical 2: Motors: Theory and Application	This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate.	2	Intermediate
Electrical Architecture	An electrical circuit is a conductive path through which electrical current can flow. In this interactive online course on Electrical Architecture, you'll gain a knowledge of technical requirements on individual electric components, equipment, and entire electrical systems. Key principles covered in this course include switch circuit arrangements, dedicated vs. shared circuits, circuit voltages, heater contactors, and the basics of electrical wiring.	0.5	Fundamental
Electrical Equipment: AC and DC Motors	This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part.	2	Intermediate
Electrical Equipment: Electrical Production and Distribution	This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized.	2	Intermediate
Electrical Equipment: Motor Controllers and Operation	This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Electrical Fire Alarm Systems</b>	This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification.	1	Fundamental
<b>Electrical Installations 1: Electrical Laws, Components and Circuits</b>	The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time.	1	Fundamental
<b>Electrical Maintenance: Battery Systems</b>	This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries.	2	Intermediate
<b>Electrical Maintenance: Fasteners</b>	This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners.	2	Intermediate
<b>Electrical Maintenance: Introduction to the NEC</b>	This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information.	2	Intermediate
<b>Electrical Maintenance: Relays, Part 1</b>	The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used.	1	Intermediate
<b>Electrical Maintenance: Relays, Part 2</b>	The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service.	1	Intermediate
<b>Electrical Maintenance: Troubleshooting Electrical Circuits</b>	This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems.	2	Intermediate
<b>Electrical Safety</b>	Electricity is an essential element of the workplace. It provides light, heat, motive power and communications, but it is also dangerous. The need to constantly maintain, repair and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course covers the dangers of an arc flash and the effects of different current flows on the body. It describes the importance of a lockout tagout program and the goal of the NFPA 70E standard.	0.5	Fundamental
<b>Electrical Safety General Awareness</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Electrical Systems</b>	This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system.	1	Intermediate
<b>Electrical Systems and Equipment, Part 1</b>	This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly.	1	Intermediate
<b>Electrical Systems and Equipment, Part 2</b>	Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency.	1	Intermediate
<b>Electrical Theory &amp; Mathematics</b>	An understanding of basic electrical theory and mathematics is valuable for all electrical work. In this interactive online course, you'll learn critical principles of Electrical Theory, and the Mathematics involved in performing calculations to solve electrical circuit parameters, such as voltage, amperage, resistance and power. This course will introduce you to Ohm's Law, Watt's Law, Kirchoff's Law, and Faraday's Law.	0.5	Fundamental
<b>Electrical Wiring: Cables and Conductors</b>	This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations.	2	Intermediate
<b>Electrical Wiring: Conduit Installation</b>	This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Electrical Wiring: Splices and Terminations</b>	This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations.	2	Intermediate
<b>Electromagnetic Relays</b>	When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays.	1	Intermediate
<b>Email and Messaging Safety</b>	Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft.	0.25	Fundamental
<b>Email Basics</b>	Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one.	0.5	Intermediate
<b>Email Etiquette</b>	Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication.	2.5	Intermediate
<b>Emergency Power Testing</b>	Did you know when standby/emergency generators fail to start during an actual emergency the very real possibility exists that lives could be lost, or businesses could lose? To achieve maximum system dependability, a scheduled series of inspections and tests must be performed. Due to the potentially life-affecting nature of being without power altogether, or the possibility of a system actually causing life-threatening conditions, several government agencies have established minimum requirements for inspecting and testing emergency standby generators. This interactive online course addresses ways to maximize reliability in standby power systems.	0.5	Fundamental
<b>Emission Controls</b>	One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions.	1	Intermediate
<b>Employee Discipline</b>	Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results.	1	Intermediate
<b>Employee or Independent Contractor: The Risk of Misclassification of Employees</b>	A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, et cetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors.	0.5	Fundamental
<b>Energy Accounting</b>	Buildings are constructed to provide enclosed environments within which people can comfortably live and productively work. Creating comfortable, productive environments requires energy, and energy costs money. Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed, there are certainly going to be some opportunities for improvements in operational efficiency. This interactive online course will cover some of the concepts and terms needed to understand and manage energy consumption.	0.5	Fundamental
<b>Energy Conversion Analysis (RV-10839)</b>	Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid.	4	Intermediate
<b>Energy From Waste</b>	How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel.	1	Fundamental
<b>Energy Management Basics</b>	Buildings account for 76% of all the electricity consumed in the U.S. With that much energy being consumed; there are certainly some opportunities for improvements in operational efficiency. In managing the energy consumption of a building there are two goals, one is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some of the terminology and skills involved in basic building energy management.	0.5	Fundamental
<b>Energy Management Exercise, and Safety</b>	Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done.	0.5	Intermediate
<b>Energy Modeling Outcomes - Design with Confidence</b>	What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Environmental Awareness</b>	Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it. This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident.	0.25	Intermediate
<b>Environmental Driving Hazards</b>	Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards.	0.25	Intermediate
<b>Equipment Drive Components: Gear, Belt, and Chain Drives</b>	This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives.	2	Intermediate
<b>Equipment Hazard Basics</b>	Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards.	0.25	Intermediate
<b>Equipment Lubrication: Using Lubricants</b>	This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated.	2	Intermediate
<b>Ergonomics Economics</b>	What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings.	0.5	Intermediate
<b>Ergonomics for Industrial Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Ergonomics for Office Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Escape Respirators and SCSRs</b>	A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR.	0.53	Intermediate
<b>ESD Precautions</b>	This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment.	1	Intermediate
<b>Essential Lighting: The Language, Metrics &amp; Process of Lighting Design</b>	This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad. The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment. The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective. Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics. There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Essential Skills of Communicating: 01-Empowering Leadership Communication</b>	Utilize an empowering and dynamic communication process to increase team members motivation and commitment.	1	Intermediate
<b>Essential Skills of Communicating: 02-Craft Clear and Concise Messages</b>	Construct and express clear and concise messages in both written and spoken communication.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member	Deliver messages that address the interests of the listener.	1	Intermediate
Essential Skills of Communicating: 04-Listen To Communicate	Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others.	1	Intermediate
Essential Skills of Communicating: 05-Manage Nonverbal Behavior	Make verbal and nonverbal communication congruent to reinforce the intent of messages.	1	Intermediate
Essential Skills of Communicating: 06-Impactful Feedback	Provide the rationale for your feedback, whether to reinforce or improve performance.	1	Intermediate
Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating	Practice the skills learned in Essential Skills of Communicating in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 01-The Work of Leaders	Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path.	1	Intermediate
Essential Skills of Leadership: 02-Focus on Behavior	Base discussions about performance and work habits on behavior rather than on personalities and attitudes.	1	Intermediate
Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem	Acknowledge contributions, results and accomplishments to enhance self-esteem.	1	Intermediate
Essential Skills of Leadership: 04-Encourage Team Member Participation	Involve team members in goal setting, problem-solving and decision-making.	1	Intermediate
Essential Skills of Leadership: 05-Lead Effective Meetings	Deploy meeting management skills to meet the goals of the meeting in the available time.	1	Intermediate
Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership	Practice the skills learned in Essential Skills of Leadership in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check	Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Essentials of I-9 Compliance	To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers. There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties. This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	0.5	Fundamental
Essentials of Industrial Wastewater Treatment	High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand. This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly.	1	Fundamental
Essentials of Lean Manufacturing	What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to think Lean and apply Lean methods and tools to improve the quality and efficiency of your company.	1	Intermediate
Essentials of Six Sigma	Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, it's management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently.	0.75	Intermediate
Ethics for Professionals	What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently.	1	Fundamental
Ethylene Oxide Safety	This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided.	1	Intermediate
Everyone is a Leader	For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyone's benefit.	0.5	Intermediate
Excel Basics for Mac	Get Started with Microsoft Excel - The Most Useful Software Ever Created Excel can do almost anything - crunch numbers, create lists, store data, edit budgets, and more. In this basics course we'll show you how to get started with Excel on a Mac, including using the most popular features. Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!	2.25	Fundamental
Excel for Project Management	Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan.	1	Fundamental
Excel: Creating Dashboards	Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that.	3	Fundamental
Excel: Data Analysis With Pivot Tables	Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016.	2.5	Advanced
Excel: Introduction to PowerPivot	Learn How To Transform Excel Into Your Big Data Power Tool Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course we'll show you everything you need to know in order to install and start using Power Pivot in Excel.	1.25	Fundamental
Excel: Power Functions	Learn to Use the 10 Excel Functions Recommended by the Experts Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, it's guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Existing Building Commissioning: Implementing Retrocommissioning on Your Project</b>	What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process.	1	Intermediate
<b>Exit Routes, Emergency Action Plans &amp; Fire Prevention Plans</b>	A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that will help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes.	1	Fundamental
<b>Explosive and Flammable Chemicals</b>	A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented.	1	Intermediate
<b>Eye and Face Protection</b>	Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment.	1	Intermediate
<b>Facilitating Meetings and Groups</b>	LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals.	7	Intermediate
<b>Facility Asset Management</b>	Facility asset management is the process of taking care of things of value in and around a facility; equipment, buildings, systems, walls, roofs, sidewalks, parking lots, and so on. In this course you will learn about the components necessary to implement an effective asset management program. You will also learn about the relationship of asset cost to maintain and future capital expenditures, purchasing the appropriate quality assets and parts, documenting asset history and performance, critical asset analysis, failure mode and effect analysis (FMEA), auditing of the maintenance process, life cycle analysis, forecasting and budgets, and performance measures.	1	Fundamental
<b>Facility Maintenance Management</b>	Facility maintenance management is the logistical component of taking care of a facility, and involves managing the day to day maintenance requirements of a facility. In this course, you will learn about work request management, work planning and work scheduling, computerized maintenance management systems (CMMS), and communication methods and techniques associated with the maintenance function. You will also learn about how to address staffing concerns, how to address travel and transportation of your maintenance technicians, and backlog management. Also discussed are how to properly lead a facility maintenance team, and how to develop a long term facility maintenance management plan.	1	Fundamental
<b>Facility Management Essentials</b>	In this course, you will learn about the key principles you need to understand to be able to be a successful facility manager. You will learn about leadership and management skills needed in facility management, in addition to topics around business finance, staffing, work flow/asset tracking, work planning/scheduling and maintenance, management and craft training, performance measures, and customer/client communication and coordination.	1	Fundamental
<b>Fall Prevention and Protection - General Industry</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	1.05	Intermediate
<b>False Alarm Prevention</b>	Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Fans</b>	Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined.	1	Intermediate
<b>Fatigue Management</b>	Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue.	0.25	Intermediate
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fire and Smoke Dampers Simplified</b>	Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies.	1	Intermediate
<b>Fire Essentials and Fire Science</b>	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
<b>Fire Extinguisher Safety</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.73	Intermediate
<b>Fire Safety</b>	Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate
<b>Fire Systems and Sprinkler Basics</b>	A fire system has several devices working together to detect and warn people through visual and audio appliances when smoke, fire, or other emergencies are present. A fire sprinkler system is known as an active fire protection system that consists of a water supply system that provides adequate pressure and flow rate to a water distribution piping system, and then to the fire sprinklers connected to the system. In this interactive online course, we will discuss the components of fire systems and fire sprinkler systems.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Fire Systems: Fire Alarm Control Panel</b>	Fire alarm system equipment and installations are regulated and controlled by various national, state, and local codes. When referring to fire alarm systems, you will most likely work with different types throughout your career. Understanding the basic signals on a fire control panel will help you to feel comfortable with operating the system. This interactive online course will briefly discuss fire codes, types of fire alarm systems, and how to handle various fire alarm conditions. You'll learn the ins and outs of initiating systems and how to test, check, and troubleshoot your fire alarm system.	0.5	Fundamental
<b>Fire Systems: Fire Extinguishers</b>	According to the National Fire Protection Association (NFPA), in 2014 there were 494,000 structure fires, causing nearly \$10 billion in property damage. In the event of a fire, every second counts. Being prepared to use safety equipment properly, removing yourself from danger, and calling for help can literally save your life and the lives of those around you. This interactive online course will teach you the basics of how fire extinguishers work. You will also learn the different types of fire extinguishers and their ratings systems.	0.5	Fundamental
<b>Fire Systems: Life Safety Testing</b>	Today's modern expansive high-rise buildings have one important thing in common - their populations can rise into the hundreds or thousands of people. The building standards address every aspect of fire protection to assure the highest level of life safety achievable, but can only be achieved with the help of the Facility Professional. This interactive online course will look at various aspects of Life Safety as it relates to building operations, population control, fixed fire protection systems and fire department intervention facilities. Understanding the systems under your responsibility as the Facility Professional is key to the proper maintenance of these systems. This course will review the interaction between systems and stress the importance of monitoring and testing regularly.	0.5	Fundamental
<b>Fire Systems: Wet &amp; Dry Sprinkler Systems</b>	Did you know wet pipe sprinkler systems provide the assurance that a fire will be controlled or extinguished 96% of the time? The modern-day business facility is a complex of systems designed to provide services to the occupants. Due to the multi-story expansive building designs today, there is an increased potential for loss of life and property, requiring an increased level of fire protection. This interactive online course covers the different types of sprinkler systems you may encounter and will help you understand their limitations to maintain the level of performance designed into each component.	0.5	Fundamental
<b>Fire Water Systems – Storage, Pumping &amp; Distribution</b>	Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems.	2	Fundamental
<b>Fire! Designing Means of Escape</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>First Aid - Alcohol and Drug Overdose</b>	Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, you'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone who's overdosed on alcohol or drugs, and first aid to help the person who's overdosed.	0.25	Intermediate
<b>First Aid - Animal and Human Bites and Scratches</b>	People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, you'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person.	0.5	Intermediate
<b>First Aid - Automated External Defibrillator (AED)</b>	In some first aid situations, the victims heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the persons heart back into a normal rhythm. In this course, you'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED.	0.53	Intermediate
<b>First Aid - Bleeding Emergencies</b>	There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide.	0.5	Intermediate
<b>First Aid - Breathing Emergencies</b>	People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course you'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance.	0.25	Intermediate
<b>First Aid - Broken Bones and Dislocations</b>	Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course you'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when its necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided.	0.25	Intermediate
<b>First Aid - Burns</b>	Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity first degree, second degree, and third degree. In this course, you'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns.	0.5	Intermediate
<b>First Aid - Cardiopulmonary Resuscitation (CPR)</b>	If a persons not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, its important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained.	0.25	Intermediate
<b>First Aid - Dehydration</b>	Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
First Aid - Diabetic Emergencies	Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, you'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia).	0.5	Intermediate
First Aid - Eye Injuries	A persons eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes.	0.25	Intermediate
First Aid - Fire Ant Bites and Stings	Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas you're most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings.	0.25	Intermediate
First Aid - Flying Insect Stings	Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they aren't aggressive and they don't seek to sting humans. However, when stings do occur, they're typically minor and require only limited first aid. In other cases, however, especially if the person who's stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, you'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic.	0.25	Intermediate
First Aid - Head Injuries and Concussions	Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, you'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness.	0.27	Intermediate
First Aid - Head, Neck, Back, and Spine Injuries	Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations.	0.25	Intermediate
First Aid - Heart Attacks and Cardiac Arrest	Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest.	0.25	Intermediate
First Aid - Initial Steps	Its not always clear what to do in a situation that requires first aid. Especially if its an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victims airway is clear; checking to see if the victim is breathing; and checking to see if the victims circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid.	0.53	Intermediate
First Aid - Poisoning	The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures.	0.25	Intermediate
First Aid - Scorpion Stings	Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites.	0.25	Intermediate
First Aid - Seizures	A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, you'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure.	0.25	Intermediate
First Aid - Shock	When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock.	0.25	Intermediate
First Aid - Snake Bites	Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid.	0.25	Intermediate
First Aid - Spider Bites	Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, you'll learn basic first aid for minor spider bites. In addition, you'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone.	0.25	Intermediate
First Aid - Sprains and Strains	Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for treating sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care.	0.25	Intermediate
First Aid - Stroke	A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Associations F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
First Aid - Tick Bites	Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, you'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite.	0.25	Intermediate
First Aid - Unconsciousness	People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid.	0.25	Intermediate
First Responder Operations Level Refresher	This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics.	8	Intermediate
Flammable and Combustible Liquids	This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team.	0.5	Intermediate
Flu Awareness	According to the Centers for Disease Control and Prevention, or CDC, 25-50 million Americans get the flu each year. Of those, about 500,000 are hospitalized due to complications. There are tens of thousands of flu-associated deaths each year as well. It is essential for everyone to know how to recognize the symptoms of the flu, as well as how to treat it, when to go to the doctor, and how to prevent from getting it again.	0.33	Intermediate
Forklift Safety	Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHA's general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks.	0.73	Intermediate
Forklifts - Reducing Product Damage	This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators.	0.25	Intermediate
Formaldehyde Awareness	Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas.	0.25	Intermediate
Fuel and Combustion Systems Safety - Business Contingency Planning	Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Combustion Basics	Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment. It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: People	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning</b>	Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Supply System Issues</b>	Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks</b>	Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Natural Gas Piping Basics</b>	Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks</b>	Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - What You Don't Know Can Kill You!</b>	Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fundamentals of Business Crisis Management</b>	In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan.	2.5	Intermediate
<b>Furnace Fundamentals</b>	An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount of heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Furnace Introduction</b>	Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Fuses</b>	This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Gas Pipelines - Public Awareness</b>	Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162.	1	Intermediate
<b>Gears - Overhaul</b>	The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes.	1	Intermediate
<b>Gears - Types and Characteristics</b>	Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them.	1	Intermediate
<b>Gender Identity: Changes Organizations are Making to Increase Awareness</b>	Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness.	0.2	Intermediate
<b>Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace</b>	A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work.	0.2	Intermediate
<b>Gender Identity: What does LGBTQIA+ mean?</b>	When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym.	0.2	Intermediate
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Get It Done: Managing Email</b>	Take Control Of Your Inbox! For many people email is a source of stress, when it really should be a valuable productivity tool. In this course we'll show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email.	1	Fundamental
<b>Get It Done: Sharing Calendars</b>	How Do You Let Everyone Know Whats Going On? Its a common situation: you're working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars.	1.5	Fundamental
<b>Get SMARTER with Goals</b>	What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals.	0.5	Intermediate
<b>Giving Feedback that Gets Results</b>	Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process.	0.75	Intermediate
<b>Gmail Essentials 2015</b>	Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed!	2.25	Fundamental
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Landscape Design: Reducing the Urban Heat Island Effect</b>	As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live.	2	Fundamental
<b>Ground Fault Circuit Interrupters</b>	Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock.	1	Intermediate
<b>Grounding</b>	Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques.	1	Intermediate
<b>G-Suite Essentials (Google)</b>	Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite.	2.25	Fundamental
<b>Hand and Power Tools</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.38	Intermediate
<b>Hand Safety</b>	Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Hand Tools, Part 1	Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Hand Tools, Part 2	Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches.	1	Intermediate
Hand Washing and Hygiene	Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many food borne illnesses that surround us.	0.25	Intermediate
Hazard Communication GHS	Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle.	0.5	Intermediate
Hazard Perception - Hidden Hazards	Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards.	0.25	Intermediate
Hazardous Material Classifications	To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012.	0.5	Intermediate
Hazardous Material Labeling	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options.	0.5	Intermediate
Hazardous Material Storage	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals.	0.25	Intermediate
Hazardous Waste Essentials	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
Hazardous Waste: Treatment	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
HAZWOPER Air Monitoring	Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results.	0.6	Intermediate
HAZWOPER Chemical Protective Clothing	Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response.	0.38	Intermediate
HAZWOPER Chemical Protective Clothing Selection	Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing.	0.43	Intermediate
HAZWOPER Confined Spaces	All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHAs permit-required confined space regulations and typical confined space emergency response procedures.	0.51	Intermediate
HAZWOPER Decontamination	Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices.	0.65	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
HAZWOPER Emergency Response Plan	Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans.	0.46	Intermediate
HAZWOPER ERG Introduction	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.38	Intermediate
HAZWOPER Hazmat Physical Properties	The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity.	0.33	Intermediate
HAZWOPER Incident Command System	An incident is any event that requires emergency response to protect life or property. OSHA's HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system.	0.7	Intermediate
HAZWOPER Ionizing Radiation Safety	Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous.	0.56	Intermediate
HAZWOPER Medical Surveillance	HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and aren't experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed.	0.4	Intermediate
HAZWOPER Overview	Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements.	0.35	Intermediate
HAZWOPER Release Mitigation	Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release. Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability.	0.51	Intermediate
HAZWOPER Respirators	Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response.	0.7	Intermediate
HAZWOPER Risk Assessment	The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents.	0.53	Intermediate
HAZWOPER Safety and Health Program	HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements.	0.25	Intermediate
HAZWOPER Site Control	Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site.	0.61	Intermediate
HAZWOPER Toxicology	A chemical's ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures.	0.51	Intermediate
HAZWOPER: Operations	OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed, Emergency plans and hazardous waste informational sources, Responses to various hazardous waste sources, Medical surveillance programs, Site monitoring, engineering controls and work practices, Personal Protective Equipment (PPE)	1	Intermediate
Health Effects Caused by Mold	In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans.	1	Fundamental
Healthy Practices: Nutrition, Exercise, and Safety	We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Hearing Conservation	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.67	Intermediate
Heat Exchanger Basics	Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers.	0.25	Intermediate
Heat Exchangers: Condensers and Reboilers	There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs.	0.5	Intermediate
Heat Exchangers: Cooling Towers	In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower.	0.5	Intermediate
Heat Exchangers: Operation of Shell and Tube Types	Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger.	0.5	Intermediate
Heat Stress Causes	Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information you'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat.	0.25	Intermediate
Heat Stress Symptoms and Prevention	Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital.	0.4	Intermediate
Heating Systems Basics	Heating systems are one of the many ubiquitous conveniences of modern life. For many of us, central heating systems have always been a part of our lives. We only seem to notice heating systems when they are malfunctioning. Yet it took inventors and scientists to discover and understand heat transfer to then apply these principles for us to depend upon reliable heating systems. It behooves design engineers, operators and maintenance personnel to have a basic understanding of a few heat transfer concepts to ensure proper operation of heating systems. This interactive online course will discuss three types of heat transfer; convection, conduction and radiation. It will show how heating systems operate utilizing these forms of heat transfer acting in concert with each other. The operation of hot water and steam boilers along with electric heater will be examined. Finally, a brief explanation of controls for heating system will be presented.	0.5	Fundamental
Heating Theory	Did you know without proper control of boiler water chemistry, corrosion, scale buildup and fouling of boiler tubes can occur which will impact boiler efficiency and may result in tube failures? Boilers are a common device for converting fuel into heat by burning fuels for heating water and generating steam for heating and powering equipment. The two general types of boilers are hot water boilers and steam boilers. The water used in boilers has to process the correct chemical makeup to prevent corrosion, scaling and fouling of boiler internal parts. This interactive online course covers the theory of heat transfer. It will cover the three laws of Thermodynamics, methods of heat transfer, how heat is measured and the pressure-temperature relationships in heating systems.	0.5	Fundamental
Heavy Equipment Safety Introduction	Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment.	0.75	Intermediate
Heavy Equipment Visibility	When operating heavy equipment, the driver's view is likely to be blocked in several directions. These blind spots can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries.	0.25	Intermediate
Heavy Truck Braking System and Braking Techniques	The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system.	0.25	Fundamental
HEPA High Efficiency Filters	This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPA's are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component.	1	Fundamental
Hexavalent Chromium	Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Hiring Practices	Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation.	1.25	Intermediate
Hot Water Boilers	Boilers are fuel-burning appliances that produce either hot water or steam that gets circulated through piping for heating or process uses. The boiler operator is responsible for the safe and efficient operation of the boiler system and with proper maintenance, a hot water boiler will provide reliable heat and hot water to facilities for many years. This interactive online course explains how a boiler works and the different types of boilers. It describes the responsibilities of a hot water boiler operator and the short- and long-term inspections and maintenance for boiler systems.	0.5	Fundamental
Hot Work Safety	This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work.	0.47	Intermediate
HVAC - Air Side: Air Balance Basics	A Heating, Ventilation and Air Conditioning system (HVAC system) is a group of components working together to condition the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course focuses primarily on what an HVAC system air balance is, and how to achieve one.	0.5	Fundamental
HVAC - Air Side: Air Distribution	Do you know the meaning of the term building static? How about flow balancing? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. An HVAC system is a group of components working together to condition the air in an enclosed space. This interactive online course focuses primarily on the components that move, distribute, and control the flow of air through HVAC systems.	0.5	Fundamental
HVAC - Air Side: Air Handling in Commercial Buildings	The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This interactive online course focuses primarily on the components which condition and move the air that flows through HVAC systems.	0.5	Fundamental
HVAC - Air Side: Hot & Cold Calls	There are a number of skills needed by any individual who responds to the hot and cold calls made by uncomfortable occupants of a building. First, a person must have a complete understanding of the HVAC system in question. Second, they need to have some training in methodical problem-solving techniques or troubleshooting. Finally, the individual requires people skills, that is, the ability to interact with sometimes-frustrated clients without becoming defensive, angry or unpleasant. In this interactive online course, we will focus on how to methodically approach solving comfort-related problems. We will also discuss some best practices for handling customer interactions during hot and cold calls.	0.5	Fundamental
HVAC - Air Side: Introduction to Air Handlers	Did you know some air handlers have an airside economizer mode that will delay or eliminate the need for mechanical cooling if the outside air is cooler? The components, in an HVAC system, ensure that the air in this space is clean and odor free, and that its temperature, humidity and circulation rate are maintained within desired ranges. This interactive online course cover the components of an air handler, the operational functionality of an air handler, the methods of air handler maintenance, and the benefits and operation of an outside air economizer.	0.5	Fundamental
HVAC - Air Side: Terminal Units	The purpose of Heating, Ventilation and Air Conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. Residential, commercial, and industrial facilities use HVAC systems. An HVAC system is a group of components working together to condition the air in an enclosed space. The components ensure that the air in this space is clean and odor free, and that its temperature, humidity, and the circulation rate is within desired ranges. This interactive online course focuses primarily on the terminal units, or VAVs, that increase the efficiency and add flexibility to an HVAC system.	0.5	Fundamental
HVAC - Air Side: Variable Air Volume (VAV) Systems	How can you increase the efficiency of an HVAC system? The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and that allow equipment to operate safely and reliably. This interactive online course focuses primarily on the terminal units, or VAVs that increase the efficiency and add flexibility to an HVAC system.	0.5	Fundamental
HVAC - Heating and Cooling	HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term conditioned refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems.	0.5	Intermediate
HVAC - Hot Water and Ventilation	The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems.	0.5	Intermediate
HVAC Acoustics	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
HVAC Basics	The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components.	0.25	Intermediate
HVAC HEPA Filters	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
HVAC System Fans	Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations.	3	Fundamental
HVACR Type I Certification	Type I certification requires that technicians know how to safely and properly evacuate refrigerants from small appliances containing 5 pounds or less of refrigerant using the appliance's compressor, system pressure, or self-contained recovery equipment. This interactive online course will cover these evacuation procedures, as well as how to deal with contaminants in a system and safety considerations.	0.5	Intermediate
HVACR Type II Certification	Did you know HVAC and Refrigeration technicians who maintain, service, repair, or dispose of medium, high, and very high pressure appliances containing more than five pounds of a controlled refrigerant must pass the EPA's Section 608 Type II certification exam? Type II certification requires that technicians understand several topics related to these systems, including leak detection, leak repair, evacuation requirements, recovery techniques, refrigeration, and safety. This interactive online course will cover the appliances included in the EPA Section 608 Type II certification exam, explain the techniques that are used to recover refrigerants, list evacuation requirements, and cover safety considerations for working with or around refrigerants, recovery equipment, and HVAC and Refrigeration systems	0.5	Intermediate
HVACR Type III Certification	Did you know Type III appliances differ from Type II appliances in that they operate in a vacuum on their low-pressure sides and sometimes on their high-pressure sides, which affects what happens when they develop a leak? When a Type III appliance develops a leak in a location that is under vacuum, air and/or moisture leaks in. In this interactive online course, we will cover the EPA 608 Type III certification exam, the techniques that are used to recover refrigerant, evacuation requirements and safety considerations for working with or around refrigerants.	0.5	Intermediate
Hydraulic Fluid Safety	This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries.	0.47	Intermediate
Hydraulics: Actuators	This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators.	2	Intermediate
Hydraulics: Component Inspection and Replacement	This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders.	2	Intermediate
Hydraulics: Diagrams	This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits.	2	Intermediate
Hydraulics: Fluid and Reservoirs	This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems.	2	Intermediate
Hydraulics: Principles and Circuits	This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits.	2	Intermediate
Hydraulics: Pumps	This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps.	2	Intermediate
Hydraulics: Routine Maintenance	This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components.	2	Intermediate
Hydraulics: Troubleshooting	This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components.	2	Intermediate
Hydraulics: Valves, Part 1	This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated.	2	Intermediate
Hydraulics: Valves, Part 2	This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve.	2	Intermediate
Hydrogen Fluoride Safety	HF acid is used throughout industry every day, and in most cases, without ill effect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Hydrogen Sulfide Awareness	Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H <sub>2</sub> S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation.	0.25	Intermediate
Hydronic System Basics	Hydronic heating and cooling systems move water around in order to transfer heat and cooling. Pump and heat exchangers are key components in hydronic systems. This interactive online course covers centrifugal pumps, including their construction and operation, as well as heat exchanger technology, construction, and operation.	0.5	Fundamental
Hydronic Systems: Architecture and Operation	Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Historically, in large-scale commercial buildings, the Heating, Ventilating and Air-Conditioning (HVAC) systems utilize water-based hydronic designs. In this interactive online course, we will describe the differences among the different types of hydronic systems. We will discuss expansion tanks and their role in a hydronic system. We will also discuss make-up water systems, air elimination, meters, and gauges.	0.5	Fundamental
Hydronic Systems: Cooling Tower Basics	Did you know dry-coolers can only take advantage of the difference between the water temperature and the dry-bulb temperature, so they cannot support the temperature needs of most refrigeration systems? This interactive online course has been created with the practical user of water based (hydronic) heating and cooling systems in mind. The goal is to introduce and understand one of the most basic elements in a hydronic cooling system: The cooling tower. Here we will convey the fundamentals of the means of heat rejection so that you can responsibly and confidently manage and operate buildings that utilize such systems. The objectives of this course are to understand open tower construction and operation; fluid cooler construction and operation; and to provide an overview of water treatment basics.	0.5	Fundamental
Hydronic Systems: Cooling Tower Operation	Did you know water quality significantly affects the efficiency, maintenance requirements, and service life of evaporative cooling system equipment? Water treatment is important for efficient cooling tower operation. Water hardness, alkalinity, pH, TDS, and TSS all need to be measured and controlled to prevent scale, corrosion, and biological growth. This interactive online course cover the practical user of water based heating and cooling systems. The goal is to introduce and understand the operation of one of the most basic elements in a hydronic cooling system, the cooling tower.	0.5	Fundamental
Hydronic Systems: Pumps and Pumping Systems	Hydronics is a means of heating and cooling using a fluid as the heat transfer medium. Hydronic systems include heating water systems, chilled water-cooling systems as well as some process and domestic water distribution systems. Cooling may be provided by an air-cooled chiller or a water-cooled chiller, and heating is often provided using a hot water boiler. There are numerous pump types for hydronic systems that move fluids, and their construction and operation are dictated by the type of fluid they are moving. In this interactive online course, we will focus on rotodynamic pumps, and more specifically centrifugal pumps, since they are the most common in commercial building systems.	0.5	Fundamental
IICRC 7 Hour General Mold Program	This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	7	Fundamental
IICRC 7 Hour Mold Health Effects and Science Program	This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are: Lesson 1: More Than Mold -Health Effects Associated With Mold and Water Damage Lesson 2: Health Effects Caused by Mold Lesson 3: Mold Safety and Health Lesson 4: The Science of Mold Lesson 5: Mold Sampling	7	Fundamental
IICRC 7 Hour Mold Remediation Program #1	This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	7	Fundamental
Improving Work Habits: 01-Performance Issue or Poor Work Habit?	Distinguish between a performance issue and a poor work habit, which require a different problem-solving process.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Improving Work Habits: 02-Describing the Work Habit	Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions.	1	Intermediate
Improving Work Habits: 03-Keep Ownership with the Team Member	What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit.	1	Intermediate
Improving Work Habits: 04-How Would You Empathize?	Use empathy in your discussions is important for team member self-esteem and buy-in.	1	Intermediate
Improving Work Habits: 05-Your Path to Improving Work Habits	Learn and apply the five-step process for improving poor work habits shown by your team members.	1	Intermediate
Improving Work Habits: 06-Mastering Improving Work Habits	Practice Improving Work Habits in a full scenario situation.	1	Intermediate
Improving Work Habits: 07-Improving Work Habits Health Check	Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment.	1	Intermediate
Increase Your Listening & Communication Power	Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
Increase Your Listening Power (Effective Communication)	Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
Increasing Building Energy Efficiencies: Policies and Practice	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers	Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system. In this interactive online course, we will identify some components of air compressors, including aftercoolers, dryers, receivers, and air distribution systems.	0.5	Intermediate
Industrial Pneumatic Technology: Air Preparation	Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation. In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up.	0.5	Intermediate
Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors	Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more.	1	Intermediate
Industrial Pneumatic Technology: Compressors	In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system.	0.5	Intermediate
Industrial Pneumatic Technology: Control of Pneumatic Energy	First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together.	0.5	Intermediate
Industrial Pneumatic Technology: Directional Control Valves	A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Industrial Pneumatic Technology: Energy Transmission</b>	Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves</b>	How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts</b>	Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits. This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Force Transmission</b>	Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions. This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases.	0.5	Intermediate
<b>Innovative Heat Pump Technology</b>	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
<b>Insulators</b>	Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators.	1	Intermediate
<b>Intermediate Emergency Power Systems</b>	Did you know if you let a diesel engine run entirely out of fuel it will be necessary to bleed the fuel injector lines? We will be looking at how and why a generator actually produces electricity, as well as how a diesel internal combustion engine works. We will carefully examine how the generator head, the internal combustion engine, and ancillary components, work together to provide emergency power when it's needed. We will also examine safe and effective maintenance practices regarding the generator and its' peripheral components. This interactive online course covers the steps to test and maintain a battery, the standard components which make up a generator system, the items to inspect before manually starting a generator and will explain how to inspect the coolant system.	0.5	Fundamental
<b>Intermediate Maintenance Practices</b>	Can you differentiate between an inner race and an outer race? What is Delta T? Heating and cooling systems require preventive maintenance to run efficiently. All motors and heat transfer equipment need to be kept clean, and bearings need to be properly lubricated. This interactive online course covers some common techniques for maintaining motors and electrical contacts, bearings, chillers, coils, and steam traps.	0.5	Intermediate
<b>Intermediate Motors</b>	To achieve long motor life, it is necessary to understand the different causes of motor failures, and how to operate and maintain motors to prevent these early failures. This interactive online course covers best practices for performing maintenance for the long-term reliability of AC and DC motors used in facilities and addresses the proper procedures for troubleshooting. Proper use of the tools and equipment required for motor maintenance such as winding testing, shaft alignment, and vibration monitoring/analysis are also discussed.	0.5	Intermediate
<b>Intermediate Water Treatment</b>	Over 90 percent of Legionnaires' disease cases are caused by Legionella pneumophila, which is a harmful bacteria sometimes found in cooling water systems. Water treatment affects all of our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover intermediate water treatment in large buildings, and is directed toward the building manager or technician. Operation and maintenance of cooling towers and boilers will be discussed, along with control of water chemistry, dissolved oxygen, solids and bacteria that can lead to scaling, corrosion and fouling of water treatment systems, along with exposure to Legionnaires' disease.	0.5	Intermediate
<b>International Building Code &amp; More: Construction Types and Building Sizes</b>	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
<b>International Building Code &amp; More: Means of Egress</b>	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
International Building Code (IBC) - Assembly Spaces	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
International Building Code Significant Changes to 2012 Edition	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental
Internet and Computer Policy	As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused.	0.5	Intermediate
Interpersonal Communication	Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Interviewing Skills for Employees	What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview.	0.5	Intermediate
Interviewing Skills for Managers: Conducting an Interview	Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats.	0.5	Intermediate
Interviewing the Right Way	There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position.	0.5	Fundamental
Interviewing the Right Way & Managing the Millennial (RV-PGM145)	The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	1	Fundamental
Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
Investigation of Failures	This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories.	0.5	Intermediate
Irritants, Corrosives and Sensitizers	In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace.	1	Intermediate
It's my Job! Career Growth	While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Janitorial Safety	Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DON'T perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companies top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment, Back Injury Prevention, Bloodborne Pathogens, Slips, Trips and Falls, Electrical Safety, Chemicals	0.25	Fundamental
Job Hazard Analysis	This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial work-places. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.43	Intermediate
Kirchhoff's Laws	Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits.	1	Intermediate
Kitchen Safety	With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries. Topics covered also include: Prevention of slips, trips and falls Knife use and safety Kitchen machinery Fire and burn prevention Chemical and hazardous materials	0.25	Fundamental
Lab Safety: Electrical Safety in the Laboratory	This interactive course on Electrical Safety in the Laboratory emphasizes the need for safety when using electricity, and discusses how to reduce the potential for accidents involving electrical shock, fire and explosions. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Flammables & Explosives in the Laboratory	This interactive course on Flammables and Explosives in the Laboratory discusses the nature of flammable and explosive materials, as well as hazards associated with their use. It also reviews the proper handling procedures and personal protective equipment that should be used when working with these substances. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: GHS Safety Data Sheets in the Laboratory	This interactive course on GHS Safety Data Sheets in the Laboratory reviews the composition of GHS Safety Data Sheets, the information that's contained in each section and how SDS's are different from Material Safety Data Sheets. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Handling Compressed Gas Cylinders in the Laboratory	This interactive course on Handling Compressed Gas Cylinders in the Laboratory examines how gas cylinders work, the hazards that are associated with them and the need for caution when using or storing a cylinder. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Laboratory Ergonomics	This interactive course on Laboratory Ergonomics discusses the need to set up work areas correctly, as well as how to minimize the strain of using laboratory equipment, tools and instruments. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Laboratory Hoods	MARCOM's interactive course on Laboratory Hoods emphasizes how to properly use laboratory hoods and how to test them to ensure correct functioning... as well as discusses how hoods can protect an experiment, the facility, and most importantly, the employee. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Orientation to Laboratory Safety	This interactive course on Orientation to Laboratory Safety shows both new employees and seasoned veterans the importance of safety in the laboratory... as well as reviews the OSHA regulations and good safety practices that apply to the laboratory environment. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: OSHA Formaldehyde Standard	This interactive course on The OSHA Formaldehyde Standard provides training that is required by this standard, and focuses on the rules and procedures that the standard establishes for working with this potentially dangerous chemical. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Planning for Laboratory Emergencies	This interactive course on Planning for Laboratory Emergencies discusses how to minimize damage and prevent injuries if an emergency should occur. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Preventing Contamination in the Laboratory	This interactive course on Preventing Contamination in the Laboratory emphasizes the need to recognize situations that could lead to contamination, and discusses what can be done to prevent contamination from occurring. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
Lab Safety: Safe Handling of Laboratory Glassware	This interactive course on Safe Handling of Laboratory Glassware discusses the nature of various types of glassware, and the problems it can cause... as well as the need for employees to use and maintain laboratory glassware safely. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Lab Safety: Safety Showers &amp; Eye Washes in the Laboratory</b>	This interactive course on Safety Showers and Eye Washes in the Laboratory reviews the correct ways to use this equipment, and emphasizes the need for quick action after a chemical splash or spill. Using a powerful combination of audio, full-motion video, text and colorful graphics, this course provides the most cost-effective safety and regulatory compliance training available today. The course is divided into a number of logical sections so information is easily understood... and retained.	0.5	Intermediate
<b>Laboratory Safety (BBLASA0CEN)</b>	This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Ladder Safety</b>	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.48	Intermediate
<b>Ladder Safety</b>	How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders.	0.5	Intermediate
<b>Laser Safety</b>	Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERS). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines.	0.25	Intermediate
<b>Lead Awareness</b>	Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods.	0.25	Intermediate
<b>Lead Contamination of Public Water Systems</b>	Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least \$384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation.	1	Fundamental
<b>Lead Safety in Construction: Keeping You Safe and Compliant</b>	Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment.	1	Fundamental
<b>Lead with Strengths</b>	It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths.	0.5	Intermediate
<b>Lead-Based Paint Safety</b>	This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint.	0.5	Intermediate
<b>Leading Engaging Zoom Meetings</b>	Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement.	1	Intermediate
<b>Lean Manufacturing: Continuous Improvement and the PDCA Cycle</b>	Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes.	0.5	Intermediate
<b>Lean Manufacturing: Determining the Voice of the Customer</b>	The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a businesses success and describes how to anticipate and meet customer needs and requirements once this data is captured.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Lean Manufacturing: Kaizen	Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet today's challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day.	0.5	Intermediate
Lean Manufacturing: Kanban	Did you know the word Kanban is of Japanese origin and translates to billboard or signboard? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it.	0.25	Intermediate
Lean Manufacturing: Poka-Yoke	This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction.	0.25	Intermediate
Lean Manufacturing: Pull Systems	This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While we'll introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes.	0.5	Intermediate
Lean Manufacturing: Standardized Work	This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting.	0.5	Intermediate
Lean Manufacturing: Value and Waste	Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value.	0.5	Intermediate
Lean Manufacturing: Value Stream Mapping	Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool.	0.5	Intermediate
Lean Manufacturing: Visual Management	Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information.	0.25	Intermediate
LEED v4 - Certified Buildings Under the O&M and BD+C Categories	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
LEED v4 - Operations and Maintenance	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
LEED v4 and Data Center Construction	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental
LEED v4 and the Future of Green	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criteria and its impact on the future of sustainable new construction.	1	Intermediate
LEED v4 for Commercial Office Buildings	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>LEED v4 for Existing Buildings: Operation &amp; Maintenance (EBOM)</b>	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
<b>LEED v4 for Healthcare Facilities</b>	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Hospitality Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for Interior Design + Construction</b>	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
<b>LEED v4 for New Construction Projects</b>	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
<b>LEED v4 for Retail Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for School Buildings</b>	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>Legionella Prevention and Control</b>	In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency.	0.5	Intermediate
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Line Breaking Safety</b>	Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved. This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break.	0.5	Intermediate
<b>Line-of-Fire Safety</b>	Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards.	0.25	Intermediate
<b>Load Securement</b>	The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety.	0.5	Intermediate
<b>Lockout Tagout for Affected Employees</b>	Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an affected employee is an employee that is affected by the lockout. This course will focus on the general awareness needed for these affected employees.	0.3	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Lockout Tagout for Authorized Employees</b>	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.47	Intermediate
<b>Lockout/Tagout &amp; Basic Arc Flash</b>	Electricity is an essential element of the workplace. It provides light, heat, motive power, and communications, but it is also dangerous. The need to continually maintain, repair, and upgrade electrical equipment means that employees will sometimes be in close vicinity to electricity and therefore exposed to some risk. This interactive online course explains the dangers of an arc flash and how to protect against an arc flash, as well as the basic principles of a lockout tagout program.	0.5	Fundamental
<b>Low/No Cost Energy Savings Opportunities</b>	In managing the energy consumption of a building, there are two goals. One is to provide and maintain the comfort of the occupants, and one is to minimize the amount of energy, and therefore money, consumed in the process. This interactive online course will cover some low-cost methods that can be used to minimize building energy consumption.	0.5	Fundamental
<b>Machine Guarding</b>	This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery.	0.62	Intermediate
<b>Maintenance of Air and Oil Circuit Breakers</b>	Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers.	1	Intermediate
<b>Maintenance of High-Voltage Circuit Breakers</b>	After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them.	1	Intermediate
<b>Maintenance of Low-Voltage Circuit Breakers</b>	Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them.	1	Intermediate
<b>Maintenance Safety</b>	Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment.	0.67	Intermediate
<b>Management 101: 01-Introduction to Management</b>	You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resistors to change. Overall, you will be better equipped as a new manager.	1	Intermediate
<b>Management 101: 02-Leading and Communicating as a Manager</b>	Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting.	1	Intermediate
<b>Management 101: 03-Making an Impact as a Manager</b>	Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact.	1	Intermediate
<b>Management 101: 04-Taking Control as a Manager</b>	Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Managing a Millennial	Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the trophy generation is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	0.5	Fundamental
Managing a Work Group	Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Managing Complaints: 01-The Difficulties of Managing Complaints	Discover the difficulties of managing team member complaints and how to overcome these issues.	1	Intermediate
Managing Complaints: 02-Handling Complaints Using Active Listening	Use active listening skills to effectively handle team member complaints.	1	Intermediate
Managing Complaints: 03-Your Path to Managing Complaints	Learn and apply the five-step process for effectively handling complaints from your team members.	1	Intermediate
Managing Complaints: 04-Mastering Managing Complaints	Practice Managing Complaints in a full scenario situation.	1	Intermediate
Managing Complaints: 05-Managing Complaints Health Check	Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment.	1	Intermediate
Managing Contractors and Temporary Employees	In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department.	3.25	Intermediate
Managing Generation X	You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers.	1	Intermediate
Managing Stress at Work	Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience.	0.5	Intermediate
Managing Technical Professionals	In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a companies strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals.	2.75	Intermediate
Managing Up: Strengthening Business Relationships	Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to.	0.5	Intermediate
Managing Yourself	Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Mastering Access 2016, Basics	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports.	3	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Mastering Access 2016, Intermediate	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, subdata-sheets, field validation, parameter queries, and more.	2.75	Fundamental
Mastering Excel 2016	The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules.	11.5	Advanced
Mastering Excel 2019 - Advanced	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more.	4.3	Fundamental
Mastering Excel 2019 - Basics	There are two kinds of people: Those who are masters at Excel, and those who wish they were When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019.	4.5	Fundamental
Mastering Excel 2019 - Intermediate	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables, Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines	5	Intermediate
Mastering Google Drive (2020)	Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device.	1.25	Fundamental
Mastering Microsoft Project 2016 – Part 1	In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval.	2.25	Intermediate
Mastering Microsoft Project 2016 – Part 2	In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project.	2.25	Intermediate
Mastering Microsoft Teams (2019)	Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams	5	Fundamental
Mastering Office 365 (2018)	Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!	11	Intermediate
Mastering OneNote 2016	Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform.	2.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Mastering Outlook 2016	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	6.25	Intermediate
Mastering Outlook 2016 Advanced	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	3	Advanced
Mastering Outlook 2016 Basics	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!	3.25	Fundamental
Mastering Outlook 2019 - Advanced	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make The Leap from Outlook User to Outlook Master!	2	Advanced
Mastering Outlook 2019 - Basics	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the time if the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!	2.25	Fundamental
Mastering PowerPoint 2016	Making PowerPoint 2016 Easy & Effective Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	8.25	Intermediate
Mastering PowerPoint 2016 Advanced	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	3.5	Advanced
Mastering PowerPoint 2016 Basics	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	4.75	Intermediate
Mastering PowerPoint 2019 - Advanced	Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	5	Fundamental
Mastering PowerPoint 2019 - Basics	Making PowerPoint 2019 Easy & Effective Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019.	4.75	Fundamental
Mastering QuickBooks Desktop 2018	Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks.	3	Intermediate
Mastering QuickBooks Online 2018	Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online.	4.25	Intermediate
Mastering Word 2016	Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features.	9.75	Advanced
Mastering Word 2016 Advanced	Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Advanced
Mastering Word 2016, Basics	Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.6	Fundamental
Mastering Word 2016, Intermediate	Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Intermediate
Mastering Word 2019 - Advanced	Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents.	2.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Mastering Word 2019 - Basics</b>	Learn the Basics of Microsoft Word 2019 Delivered in Easily Searchable, Highly Informative Content Lessons Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara Evers, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.5	Fundamental
<b>Mastering Word 2019 - Intermediate</b>	Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge	2.75	Intermediate
<b>Material Handling: Tank Trucks</b>	This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Math: Basics</b>	This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles.	2	Intermediate
<b>Mechanical Power Press Safety</b>	A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the point of operation - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards.	0.5	Intermediate
<b>Mechanical Seals</b>	The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation.	1	Intermediate
<b>Meetings That Get Results</b>	Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting!	0.5	Intermediate
<b>Metal on Metal Safety</b>	When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury.	0.25	Intermediate
<b>Metalworking Fluid Safety</b>	Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids.	0.6	Intermediate
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microgrids and the City</b>	Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources.	1	Intermediate
<b>Microsoft 365 Admin Tips and Tricks</b>	Learn the secrets to keep your Microsoft 365 tenant safe and secure. As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration.	2	Fundamental
<b>Microsoft Forms Essentials</b>	Learn How Microsoft Forms Makes It Easy to Collect Data via Forms or Quizzes Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms! In this course we'll take a close look at all the features and benefits of this new Office 365 tool!	1.33	Fundamental
<b>Microsoft Lync Essentials</b>	Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue! This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync.	1.25	Fundamental
<b>Microsoft Project 2013 Essentials Training</b>	Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Microsoft Project 2013 Intermediate Training		2	Intermediate
Microsoft Sway Essentials	Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway.	1.25	Fundamental
Microsoft Teams Essentials	Learn To Collaborate and Communicate with Microsoft Teams Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes).	1	Fundamental
Microsoft To Do Essentials	Organize Your Day Track Your To-Dos and Focus on Whats Important The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks.	0.5	Fundamental
Mobile Elevating Work Platform (MEWP) Safety	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements.	0.75	Intermediate
Mobile Elevating Work Platform (MEWP) Safety for Supervisors	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements.	1	Intermediate
Modern React with Redux	This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/ Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props, state, and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props and state and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them.	10.5	Intermediate
Mold Awareness and Prevention	Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home.	0.25	Intermediate
Mold Basics	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental
Mold Remediation	Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation.	1	Fundamental
Mold Remediation Equipment	The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	1	Fundamental
Mold Safety and Health	Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	1	Fundamental
Mold Sampling	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental

# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Montana 4 Hour 2017 NEC Changes: Program 1	This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC) and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial	4	Intermediate
Montana 4 Hour 2017 NEC Changes: Program 2	This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements	4	Intermediate
Montana Electrician 4 Hour Industry Related Program 1	This 4-hour program is presented in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll	4	Intermediate
More Than Mold - Health Effects Associated With Mold and Water Damage	Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health.	3	Fundamental
Motivating Employees	How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization.	0.5	Intermediate
Motivational Ethics	**This course does not provide CEU or PDH credit** A lot of good people find themselves getting fired, or even getting arrested, and have to ask, How did I end up here? You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life. What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful.	1.75	Fundamental
Motor Basics	Do you know the difference between a stator and a rotor? An electric motor is a rotating machine that converts electrical energy into mechanical energy. Electric motors operate by the interaction between the motor's magnetic field and an electric current in a wire winding to generate a force that results in shaft rotation. This course will address the two general types of electric motors by describing how they are constructed and the principles of operation of each type.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Motor Branch Circuit Protection</b>	A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course.	1	Intermediate
<b>Mounting and Dismounting Heavy Equipment</b>	Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. Mounting and dismounting often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment.	0.25	Intermediate
<b>MRO Stockroom Management</b>	What would happen if you are out of stock of a very important part? MRO, or maintenance, repair, and operations requires identifying which parts need to be on hand based on frequency of failures and balancing the cost of inventory. This interactive online course will discuss how to maintain hardware MRO stock, how to manage consumables, and the benefits and costs associated with MRO management.	0.5	Fundamental
<b>Multigeneration Management: 01-Workforce Generations</b>	At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace.	1	Intermediate
<b>Multigeneration Management: 02-Leading Silents and Boomers</b>	For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities.	1.5	Intermediate
<b>Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next)</b>	Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series.	1.25	Intermediate
<b>Multigeneration Management: 04-Cross-Generational Teams</b>	Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course.	1	Intermediate
<b>Multigeneration Management: 05-Developing Generations</b>	When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course.	1	Intermediate
<b>Multistage Centrifugal Pump Maintenance</b>	Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single-stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.	1	Intermediate
<b>Multistage Centrifugal Pumps</b>	A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps.	0.25	Intermediate
<b>Natural Gas Systems - Sizing and Design Consideration</b>	What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes,Knowing the requirements of the natural gas utility supplier,Venting requirements,Pipe identification and labeling requirements,Pipe support requirements,Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, andSelection of piping material.	1	Intermediate
<b>Negativity in the Workplace</b>	In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome.	4	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>New Employee Safety Orientation</b>	All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace.	0.5	Intermediate
<b>NFPA 70E Introduction</b>	NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements.	0.5	Intermediate
<b>NFPA 70E® - 2018 Updates</b>	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
<b>Night Shift Safety</b>	Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual works shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night.	0.3	Intermediate
<b>Nitrogen Safety Awareness</b>	Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others.	1	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements</b>	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding &amp; Bonding, and Enclosure Boxes</b>	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings	2	Intermediate
<b>North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
NPDES Wastewater Discharge Permits	Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects waters of the United States (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course.	0.5	Intermediate
Occupational Safety Training: Introduction to OSHA	Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment.	0.5	Intermediate
Office 365 Groups Essentials	Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team.	1	Fundamental
Office 365 Planner Essentials	Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans.	0.75	Fundamental
Office Safety	While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace. This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace.	0.25	Intermediate
Ohm's Law	The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law.	1	Intermediate
Oil Spill Responses in Facilities	The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill.	1	Intermediate
OJT Mentor	On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more.	0.5	Intermediate
Oklahoma 6 Hour 2017 NEC Changes Program	This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314.	6	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
OneDrive Essentials (2016)	OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others.	1.5	Fundamental
OneNote for Windows 10 Essentials	The Structure You Need with the Flexibility You Want OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and more all in one place. Its almost like having an old-school, three-subject binder except with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote.	1.25	Fundamental
Online Marketing 101	This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators You've heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques.	1.5	Fundamental
Operator Responsibilities: Plant Production and Safety	The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with.	0.5	Intermediate
Order Picker Safety	An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers.	0.25	Intermediate
Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
Oregon 2017 NEC Changes: Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings	2	Intermediate
Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment	This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	2	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches</b>	This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches. Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles.	2	Fundamental
<b>OSHA 10 Hour Construction Program</b>	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: Introduction to OSHA Electrical Safety Fall Protection Struck-By & Caught-Between Accidents Personal Protective Equipment (PPE) Scaffolds Cranes Hand & Power Tools Excavations Materials Storage Demolition Hazards in Construction	10	Fundamental
<b>OSHA Electrical General Requirements</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHA's most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs.	0.5	Intermediate
<b>OSHA Electrical Wiring Methods</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHA's most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard.	0.5	Intermediate
<b>OSHA Pressure Vessel Chemical Cracking</b>	A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health. This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>OSHA Safety: Drilling</b>	The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities.	4	Fundamental
<b>OSHA Safety: Introduction to Powered Industrial Trucks</b>	Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles.	1	Fundamental
<b>OSHA Underground Construction</b>	This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: Underground Construction Part I Underground Construction Part II Caissons & Cofferdams Compressed Air After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Outlook 2013: 01-Getting Started in Outlook 2013</b>	Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore what's new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423.	1.5	Intermediate

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<b>Outlook 2013: 02-Message and Contact Management in Outlook 2013</b>	Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013s available features and tools for email and contact customizations.	1.5	Intermediate
<b>Outlook 2013: 03-Time and Task Management in Outlook 2013</b>	Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists.	1.25	Intermediate
<b>Outlook Online Essentials (2018)</b>	Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People Sometimes you need a quick way to get to your stuff no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well.	2.5	Fundamental
<b>Overcurrent Protection I - Short Circuit Calculations</b>	This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected faults currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Overcurrent Protection II - Coordination</b>	This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Overhead Crane Basics</b>	Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging.	0.25	Intermediate
<b>Overhead Crane Operational Safety</b>	The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment.	0.25	Intermediate
<b>Overhead Hoists</b>	Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. Well show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists.	0.5	Intermediate
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Pallet Jack Safety</b>	A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack.	0.25	Intermediate
<b>Parallel Circuits</b>	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate
<b>Password Security Basics</b>	This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords.	0.25	Fundamental
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>Pedestrian Safety</b>	Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines.	0.25	Intermediate

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Title	Description	Hours	Level
Peer Checking	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Performance Management: 01-Preventing Performance Problems	The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out you'll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. You'll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series.	1	Intermediate
Performance Management: 02-Identifying Performance Problems and Causes	Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. You'll also explore the role that personality plays in performance problems. You'll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series.	1	Intermediate
Performance Management: 03-Feedback and Counseling	The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series.	1	Intermediate
Performance Management: 04-Effectively Disciplining Problem Performance	Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. You'll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change.	1	Intermediate
Personal Accountability for Safety	The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability.	0.25	Intermediate
Personal Protective Equipment	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.67	Intermediate
Personal Protective Equipment For Mold Remediation Contractors and Consultants	From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment.	1	Fundamental
Personal Safety for Lab Technicians	This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Persuasion: The Art of Communication	All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade.	1.25	Fundamental
Pipes and Valves: Basic Pipefitting Skills	Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square.	2	Intermediate
Pipes and Valves: Calculating Offsets	Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets.	2	Intermediate
Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe	Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Pipes and Valves: Installing Pipe Hangers and Supports</b>	Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors.	2	Intermediate
<b>Pipes and Valves: Installing Screw and Welded Pipe</b>	Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping.	2	Intermediate
<b>Pipes and Valves: Pipes and Pipe Fittings</b>	This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe.	2	Intermediate
<b>Pipes and Valves: Special Calculations</b>	Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures.	2	Intermediate
<b>Pipes and Valves: Valve Maintenance</b>	This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it.	2	Intermediate
<b>Pipes and Valves: Valve Types and Operation</b>	This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated.	2	Intermediate
<b>Piping and Auxiliaries: Basic Components and Functions</b>	This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems.	2	Intermediate
<b>Piping and Auxiliaries: System Components and Operation</b>	This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems.	2	Intermediate
<b>Plant Science: Fluid Systems</b>	This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices.	2	Intermediate
<b>Plant Science: Forces and Machines</b>	This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines.	2	Intermediate
<b>Plant Science: Gases and Flowing Liquids</b>	This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid.	2	Intermediate
<b>Plant Science: Heat</b>	This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms sensible heat and latent heat. Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change.	0.5	Intermediate
<b>Plant Science: Solids and Liquids</b>	This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids.	2	Intermediate
<b>Plumbing Basics</b>	Confused about the difference between PVC and CPVC piping? Can you explain how copper pipe is swaged or sweated? How is PVC pipe joined or connected? This course looks at three types of plumbing piping; plastic, steel and copper. At the end of this training you will have general knowledge of the uses for plastic, steel and copper pipe. You will know what fluids each type of pipe can convey safely. Joining methods suitable for each type of pipe will be discussed. While the material presented in the training is not intended to lead directly to performing these joining techniques, you should be able to discuss the techniques and be able to inspect piping systems. With assistance and guidance from a skilled plumber, you should be able to start performing joining techniques, especially gluing of PVC pipe. Finally, you will also understand the potential hazards in each of the pipe joining methods.	0.5	Fundamental
<b>Plumbing Maintenance</b>	Did you know caulking around the toilet base and the floor can confine a water leak allowing it to enter the floor structure and damage it? Basic plumbing repair, maintenance procedures, and skills are required to properly maintain the fixtures used in public restrooms and commercial facilities. Some of the most common plumbing fixtures used in these buildings include; toilets, urinals, sinks, and the associated valves, traps, piping, and sealing components. This interactive online course covers the plumbing maintenance course covers the operation and maintenance of basic components used in water supply and drainage systems of households and commercial restrooms. The tools and techniques to perform these basic plumbing projects are presented. Procedures to perform basic repairs and replacement of various types of traps and valves are discussed and demonstrated using illustrations and photos.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Plumbing: Backflow Preventers</b>	Backflow is an often unknown or misunderstood phenomena. Even less understood is the purpose of backflow preventers and how they operate. Backflow is a condition in which water in a building or facility will flow backwards, creating a potential hazard to the domestic water system. Without a properly selected, installed, maintained and tested backflow device, hazard conditions resulting in illness or even death can occur. In this interactive online course, you will be introduced to what backflow is, under what conditions backflow can occur and the provisions to prevent backflow from occurring. Several key definitions will be presented and the operation of each type of backflow preventer is briefly explained. At the end of this training you will have a workable understanding of backflow devices and how to troubleshoot breakdowns.	0.5	Fundamental
<b>Plumbing: Pipe Fitting</b>	Do you know the difference between a street ell and a dielectric union? A thorough understanding of plumbing systems is not possible without knowledge of the importance of fittings. While fittings are small and seldom seen, their importance cannot be overstated. Fittings provide the accessories to complete a plumbing system. Couplings allow multiple pipe sections to be connected. Elbows provide the mechanism for pipes to change direction. Unions are essential for easily disassembling plumbing systems for maintenance and repair. Plastic, steel and copper water piping systems will be covered, for waste systems plastic and cast-iron piping will be discussed. The unique connection methods for each piping material will be reviewed. While there are dozens of fittings available to the plumber only the most common ones will be presented including, couplings, elbows, unions, nipples and reducers. The cause of galvanic corrosion will be examined along with the fitting that prevents this type of corrosion. At the conclusion of this training you will be able to describe the connection method of various pipe materials and the tools and techniques required. You will be able to identify and describe a street ell and a dielectric union. You will become aware of troubleshooting procedures for leaking unions. Finally, information on drain piping and the connection methods using no-hub fittings will be presented.	0.5	Fundamental
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations</b>	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups</b>	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling</b>	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure</b>	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan</b>	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope</b>	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope</b>	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities</b>	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule</b>	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration</b>	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 12-Controlling Costs</b>	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 13-Estimating &amp; Budgeting Project Costs</b>	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 14-Project Quality Planning</b>	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control</b>	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources</b>	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources</b>	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications</b>	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bitter conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the projects outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a projects stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a projects lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced
<b>Pneumatic Building Automation Basics</b>	Pneumatic systems are simply a division of engineering which uses gas or pressurized air. Pneumatic control systems can be effective and economical. In HVAC systems, this control method relies on sensors and thermostats that retain the line pressure from the sensor to the control device and the actuator. This interactive online course will provide a basic understanding of the components that make up a pneumatic system including the conditioning and operating systems. An introduction to pneumatic actuators, electro-pneumatic transducers, and pneumatic thermostats is included. Additionally, you'll learn about certain hazards associated with maintaining a pneumatic system and the proper safety precautions and maintenance techniques that will minimize these hazards.	0.5	Fundamental
<b>Pneumatic Tool Safety</b>	Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chip-ping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them.	0.25	Intermediate
<b>Pneumatics: Actuators and Positioners</b>	Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them.	1	Intermediate
<b>Pneumatics: Basic Pneumatic Control Systems</b>	In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions. This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems.	1	Intermediate
<b>Pneumatics: Basic Pneumatic Control Systems and Diagrams</b>	Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation. This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant.	1	Intermediate
<b>Pneumatics: Controllers</b>	In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system. This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate.	1	Intermediate
<b>Pneumatics: Indicators and Hand-Auto Control Stations</b>	Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Pneumatics: Multi-Element Pneumatic Control Systems</b>	Multi-element pneumatic control systems, like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and components in the system work together to keep a process variable at or close to set point.	1	Intermediate
<b>Pneumatics: Pneumatic Instrument Tubing</b>	In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others.	1	Intermediate
<b>Pneumatics: Self Balancing Instruments</b>	At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located.	1	Intermediate
<b>Pneumatics: Transmitters</b>	Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar. In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms.	1	Intermediate
<b>Pneumatics: Troubleshooting Pneumatic Instrument Systems</b>	As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently. This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue.	1	Intermediate
<b>Pneumatics: Tuning Pneumatic Control Systems</b>	When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant.	1	Intermediate
<b>Pollution Prevention Best Practices</b>	Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source.	0.5	Intermediate
<b>Portable Loading Ramps</b>	Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps.	0.25	Intermediate
<b>Positive Displacement Pump Maintenance Basics</b>	The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures.	1	Intermediate
<b>Positive Displacement Pumps</b>	A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs.	0.5	Intermediate
<b>Power BI Essentials</b>	Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish.	1	Fundamental
<b>Power Supplies</b>	An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served.	1	Intermediate

<b>Facilities Management &amp; Maintenance Complete (Continued)</b>			
<b>Title</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
<b>Power Up PowerPoint</b>	Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience. Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to power up your next presentation!	2.75	Intermediate
<b>Powerful Presentations</b>	Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results.	0.5	Intermediate
<b>Pressure Washing Best Management Practices</b>	Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water.	0.5	Intermediate
<b>Preventing Intersection Collisions - Cross Traffic</b>	Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic.	0.25	Intermediate
<b>Preventing Intersection Collisions - Rear-ends</b>	More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle.	0.25	Intermediate
<b>Preventing Intersection Collisions - Turning</b>	Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections.	0.25	Intermediate
<b>Preventing Loss of Control Crashes</b>	Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control.	0.25	Intermediate
<b>Preventing Mold Growth</b>	Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth.	1	Fundamental
<b>Preventing Sideswipe Collisions</b>	Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards.	0.25	Intermediate
<b>Preventing The Spread Of Contagious Illness</b>	This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas Special MRSA precautions Responding to a potential infection Medical diagnosis and treatment of contagious illnesses	0.25	Fundamental
<b>Preventive Maintenance Basics</b>	Did you know filter maintenance can prevent premature failure in HVAC systems? There are several routine preventive maintenance tasks required to maintain indoor air quality and keep a building's heating and cooling systems running efficiently. This interactive online course covers basic filter replacement best practices, v-belt replacement and alignment procedures, how to clean a coil, basic lubrication techniques, and daily rounds and readings and how to perform them.	0.5	Fundamental
<b>Pricing as a Professional</b>	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Problem Solving</b>	Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Procedure Use and Adherence</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Process Safety Management</b>	Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): 1910.119 Overview and Auditing</b>	The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection.	1	Intermediate
<b>Process Safety Management (PSM): An Overview</b>	This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM.	1	Intermediate
<b>Process Safety Management (PSM): Compliance Audits</b>	Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements.	1	Intermediate
<b>Process Safety Management (PSM): Contractors</b>	On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations.	1	Intermediate
<b>Process Safety Management (PSM): Emergency Planning &amp; Response</b>	Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Employee Participation</b>	The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training.	0.5	Intermediate
<b>Process Safety Management (PSM): Hot Work Permits</b>	In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can include welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations.	1	Intermediate
<b>Process Safety Management (PSM): Incident Investigations</b>	There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Management of Change</b>	Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode.	0.5	Intermediate
<b>Process Safety Management (PSM): Mechanical Integrity</b>	Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Process Safety Management (PSM): Operating Procedures</b>	Methyl isocyanide, aldicarb oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Process Safety Management (PSM): Pre-Startup Safety Review</b>	On August 28, 2008, an explosion at the Bayer Crop Science plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation.	1	Intermediate
<b>Process Safety Management (PSM): Process Hazard Analysis</b>	Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis.	0.5	Intermediate
<b>Process Safety Management (PSM): Process Safety Information</b>	Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed.	0.5	Intermediate
<b>Process Safety Management (PSM): Trade Secrets</b>	There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safety management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information.	0.5	Intermediate
<b>Process Safety Management (PSM): Training</b>	On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Project Management Essentials</b>	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
<b>Project Risk Management</b>	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Project Team Management</b>	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Property Management Safety - Employee Slips and Falls</b>	Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Property Management Safety - Fire Prevention</b>	Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions.	0.1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Property Management Safety - Personal Protective Equipment	During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions.	0.1	Fundamental
Property Management Safety - Resident Safety	In every property management environment, nothing is more important than the safety of your residents. There are many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions.	0.1	Fundamental
Property Management Safety - Resident Slips and Falls	When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions.	0.1	Fundamental
Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate
Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental
Protecting People Against Terrorist Attacks: Structural Design Criteria	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
Protecting Water Systems Through Backflow Prevention	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
Protecting Your Team Against Workplace Violence	Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents.	1	Fundamental
Protection Against Malware	Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies	0.25	Fundamental
Providing Performance Feedback: 01-The Power of Performance Feedback	Discover when to give performance feedback to team members and what sources to use for information.	1	Intermediate
Providing Performance Feedback: 02-Providing Verbal Performance Feedback	Practice providing verbal performance feedback to team members using key concepts in the course.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Providing Performance Feedback: 03-Providing Written Performance Feedback	Learn how to provide effective feedback in writing to empower team members.	1	Intermediate
Providing Performance Feedback: 04-Your Path to Providing Performance Feedback	Learn and apply the five-step process for providing timely performance feedback to a team member.	1	Intermediate
Providing Performance Feedback: 05-Mastering Providing Performance Feedback	Practice Providing Performance Feedback in a full scenario situation.	1	Intermediate
Providing Performance Feedback: 06-Providing Performance Feedback Health Check	Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment.	1	Intermediate
Pumping Stations - Pumps, Motors and Electrical Systems	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental
Pumps Introduction	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes. This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications.	0.25	Intermediate
Pumps: Fundamentals of Centrifugal Types	This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system.	2	Intermediate
Pumps: Multistage Centrifugal	This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary.	2	Intermediate
Pumps: Operation of Centrifugal Types	This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump.	2	Intermediate
Pumps: Performance and Inspection	This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations.	2	Intermediate
Pumps: Reciprocating Positive Displacement Types	This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
Pumps: Rotary Positive Displacement Types	This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
R & D Chemical Hygiene	Significant injuries, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory.	1	Intermediate
R & D Waste Management	This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory.	1	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Raceways	This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments.	2	Intermediate
Radiation Safety	The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program!	0.25	Intermediate
Radiofrequency (RF) Radiation Hazard Prevention	Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation.	0.66	Intermediate
RCRA - Emergencies, Inspections, and Training	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation.	0.5	Intermediate
RCRA - Generator, Container, and Tank Requirements	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls.	0.5	Intermediate
RCRA - Introduction	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule.	0.5	Intermediate
RCRA - Preparing for Transportation, Manifesting, and LDR	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards.	0.5	Intermediate
RCRA - Special Wastes and Other Requirements	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process.	0.5	Intermediate
Reading Electrical Diagrams, Part 1	Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams.	1	Intermediate
Reading Electrical Diagrams, Part 2	A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams.	1	Intermediate
Reciprocating Compressors, Part 1	The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor.	1	Intermediate
Reciprocating Compressors, Part 2	The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor.	1	Intermediate
Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental

# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Refrigerant Management	Did you know many refrigerants are harmful to human health and/or the environment? In air conditioning and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. This interactive online course covers how to execute a refrigerant management program to be compliant with AHJ requirements, identifies EPA Regulations, and describe record keeping requirements.	0.5	Fundamental
Refrigerant Safety and Handling	In air conditioning (AC) and refrigeration systems, the refrigerant is the substance that circulates through the equipment, transporting heat from one area to another. Refrigerants must be handled and used carefully as many of them present hazards to the environment and human health. This interactive online course discusses safe methods of working with refrigerants and refrigeration systems.	0.5	Intermediate
Refrigeration - Compressors, Valves and Piping	The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature.	0.5	Intermediate
Refrigeration - Refrigerant Properties	Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used.	0.5	Intermediate
Refrigeration - Refrigerant Selection	Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems.	0.25	Intermediate
Refrigeration - System Components	There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes.	0.25	Intermediate
Refrigeration - System Troubleshooting	Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance.	0.25	Intermediate
Refrigeration - Vapor-Compression Cycle	The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage.	0.25	Intermediate
Refrigeration Basics	The refrigeration cycle is used in many different applications to transfer heat from one fluid to another. One common application is to provide cooling in HVAC systems. This interactive online course discusses the theory, equipment, and processes related to the vapor-compression refrigeration cycle.	0.5	Fundamental
Refrigeration Components	In the vapor-compression refrigeration cycle, a refrigerant alternately absorbs and rejects heat as it circulates through four components - an evaporator, compressor, condenser, and metering device - changing pressure, temperature, and phases along the way. This interactive online course discusses different types of refrigeration systems and their components. It also discusses metering devices, compressors, and non-condensable gases.	0.5	Fundamental
Refrigeration Theory	Did you know the most common method of refrigeration is the vapor-compression refrigeration cycle? Refrigeration systems are used in many different applications to transfer heat from fluid in one area to fluid in another area, where the term fluid can refer to a liquid or gas. This interactive online course covers the three laws of thermodynamics, the operation of the four components of a basic refrigeration system, thermal energy transfer, and the maintenance procedures to maintain equipment efficiency.	0.5	Fundamental
Rehabilitation of Water Distribution Systems: Current Technologies	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced
Rehabilitation of Water Distribution Systems: Designing Renewal Projects	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the US. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods.	1	Advanced
Rehabilitation of Water Distribution Systems: Selecting Rehab Methods	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced
Reliability Centered Maintenance	Do you know the difference between preventative maintenance and predictive maintenance? There are different maintenance requirements for each asset. For example, some components fail consistently at a certain age, while others can be used indefinitely if properly maintained. Reliability-centered maintenance (RCM) involves establishing and maintaining an asset-specific maintenance plan to ensure that all equipment functions as designed, with good reliability and availability, and at the lowest possible cost. In this interactive online course, we will describe the principles of reliability-centered maintenance, differentiate between the different modes of maintenance, and describe analysis methods used in developing effective maintenance plans.	0.5	Fundamental
Reliability Engineering Essentials	This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world.	1	Intermediate
Reliability Essentials for Operators and Technicians	This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world.	0.75	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Resistors	This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors.	1	Intermediate
Resolving Conflicts: 01 - Characterizing Conflict	Discover the four stages of conflict and the impact that unresolved conflict can have on an organization.	0.25	Intermediate
Resolving Conflicts: 02-Know Your Conflict Behavior	Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations.	1	Intermediate
Resolving Conflicts: 03-Identifying Conflict Behaviors	Identify the conflict behavior exhibited in order to properly handle the conflict.	1	Intermediate
Resolving Conflicts: 04-Your Path to Resolving Conflicts	Learn and apply the five-step process for resolving a conflict between two or more team members.	1	Intermediate
Resolving Conflicts: 05-Mastering Resolving Conflicts	Practice Resolving Conflicts in a full scenario situation.	1	Intermediate
Resolving Conflicts: 06-Resolving Conflicts Health Check	Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment.	1	Intermediate
Respirator Basics	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.47	Intermediate
Respirator Medical Evaluation and Fit Testing	Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail.	0.4	Intermediate
Respirators - Voluntary Use	A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the voluntary use of respirators, there are several requirements they must fulfill.	0.25	Intermediate
Rewarding Peak Performers	Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the businesses bottom line.	1.5	Intermediate
Rigging, Part 1	The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Rigging, Part 2	The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Rigging: Basic Lifting	This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability.	2	Intermediate
Rigging: Ladders and Scaffolds	This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Rolling Contact Bearings, Part 1	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings.	1	Intermediate
Rolling Contact Bearings, Part 2	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings.	1	Intermediate
Rules for Discussing Politics at Work	It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up.	0.2	Intermediate
Safe Backing of Tractor Trailer Rigs	Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the <u>cone of visibility</u> to insure safe backing.	0.25	Fundamental
Safe Food Handling	According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Food borne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: Food-borne illnesses Time and temperature control Personal hygiene Preventing contamination Cleaning and sanitizing equipment and utensils Preventing cross contamination Housekeeping and maintenance.	0.25	Fundamental
Safe Work Permits	This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc.	1	Intermediate
Safety and Health - Advanced	This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
Safety and Health - Basic	This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
Safety Management	Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility.	1	Intermediate
Safety Management: Barrier Analysis	Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis.	0.25	Intermediate
Safety Management: Change Analysis	Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis.	0.25	Intermediate
Safety Management: Emergency Action Plans	This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan.	0.25	Intermediate
Safety Management: Events and Causal Factors Analysis	Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors.	0.25	Intermediate
Safety Management: Floor and Walkway Safety and Auditing	Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces.	0.5	Intermediate
Safety Management: Hot Work Permit	This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employers written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin.	0.25	Intermediate
Safety Management: Incident Investigation	As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions.	0.5	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Safety Management: Industrial Hygiene Basics</b>	Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards.	0.5	Intermediate
<b>Safety Management: Medical and Exposure Records Access</b>	The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers.	0.25	Intermediate
<b>Safety Management: Near Miss Best Practices</b>	The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization.	0.25	Intermediate
<b>Safety Management: OSHA Record keeping</b>	In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes.	0.75	Intermediate
<b>Safety Management: Root Cause Analysis</b>	How many times have you thought a problem was fixed only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used.	0.25	Intermediate
<b>Safety Management: Root Causes of Human Behavior</b>	Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems.	0.5	Intermediate
<b>Safety Management: Safety Inspections and Observations</b>	Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations.	0.25	Intermediate
<b>Safety Management: Slip, Trip, and Fall Prevention Inspections</b>	Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses.	0.5	Intermediate
<b>Safety Management: Task Analysis</b>	When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis.	0.25	Intermediate
<b>Safety Showers and Eye Washes</b>	Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace.	0.5	Intermediate
<b>Safety Valves</b>	Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection Disassembly and Inspection Reassembly and Testing	1	Intermediate
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice (RV-10744)</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations Safe working clearances Safety practices	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Sales 101: Appointment Making</b>	The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including: What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers	1.25	Fundamental
<b>Salesforce Essentials</b>	Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects.	1.25	Fundamental
<b>Saving Time in Outlook</b>	From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include: Using Quick Steps Creating reusable text, searches, and rules to automate things you do often. Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!	0.5	Fundamental
<b>Seals: Gaskets and Packing</b>	The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals.	1	Intermediate
<b>Security Begins At The Front Desk</b>	Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your properties lobby. Topics covered also include: Protecting Guest Privacy, Human Trafficking, Emergency Response, Key Control	0.1	Fundamental
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Self-checking (STAR)</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Series Circuits</b>	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate
<b>Series-Parallel Circuits</b>	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate
<b>Set-Up of Engineering Controls for Mold Remediation Projects</b>	This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant.	1	Fundamental
<b>Seven Basic Quality Tools</b>	The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses.	0.25	Intermediate
<b>Sexual Harassment Awareness</b>	In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that persons sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Shaft Alignment, Part 1	Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment.	1	Intermediate
Shaft Alignment, Part 2	Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment.	1	Intermediate
Shaft Alignment: Reverse Dial and Laser	This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances.	2	Intermediate
Shaft Alignment: Rim and Face	This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment.	2	Intermediate
SharePoint for Site Owners	Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!	1.5	Fundamental
Sharepoint Online Essentials	Share Files and Post Information For Your Team with SharePoint Online SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team.	0.75	Fundamental
Sharing the Road with Pedestrians and Cyclists	Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians.	0.25	Intermediate
Shop Safety	The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety...your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting	0.1	Fundamental
Shoulder Injury Prevention	In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours.	0.5	Intermediate
Single-Phase AC Induction Motor Maintenance	Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them.	1	Intermediate
Site Utility Design: Commercial Buildings	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Skype for Business Essentials	Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system.	0.3	Fundamental
Sliding Surface Bearings, Part 1	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings.	1	Intermediate
Sliding Surface Bearings, Part 2	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings.	1	Intermediate
Slips, Trips, and Falls	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.48	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Business Writing: 4 Stages to Writing Your Best</b>	Some people think that in the grand scheme of things, excellence in writing isn't all that important as long as you get the General idea across. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing).	1	Intermediate
<b>Smart Business Writing: Emails &amp; Technical Proposals (RV-PGM139)</b>	This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails, Tackling the Technical Proposal. This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read.	1	Intermediate
<b>Smart Business Writing: How to Write Powerful &amp; Persuasive Emails</b>	Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit Send. This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that tells information and email that sells; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!	0.5	Intermediate
<b>Smart Business Writing: Short, Sweet and To-the-Point Reports</b>	If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be long, it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers.	1	Intermediate
<b>Smart Business Writing: Tackling the Technical Proposal</b>	Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company.	0.5	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Certificate: A Comprehensive Sales Program</b>	In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of Sales, Smart Sales 2: Naming the Decision Maker & Setting Appointments, Smart Sales 3: Holding Appointments & Advancing the Sale, Smart Sales 4: Dealing with Objections & Closing the Sale, Smart Sales 5: Business-to-Business Sales, Smart Sales 6: The Sales Cycle	3	Fundamental
<b>Smart Customer Service 1: Courtesies, Attitude, and Ethics</b>	You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet.	0.5	Intermediate
<b>Smart Customer Service 2: Listening for Understanding</b>	As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	0.5	Intermediate
<b>Smart Customer Service 3: Effective Verbal and Nonverbal Communication</b>	Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone.	1	Intermediate
<b>Smart Customer Service 4: 3 Steps to Successful Customer Interaction</b>	In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	0.5	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Customer Service 5: Handling Customer Complaints</b>	This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation.	1	Intermediate
<b>Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding</b>	This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	1	Fundamental
<b>Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140)</b>	This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer Interaction You will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	1	Intermediate
<b>Smart Finances: Creating a Budget that Works for You</b>	A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you.	1	Intermediate
<b>Smart Health: Best Practices to Help You Quit Smoking</b>	According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever.	3	Intermediate
<b>Smart Health: Child Nutrition - How to Avoid/Prevent Childhood Obesity</b>	Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift!	1	Intermediate
<b>Smart Health: Drinking Responsibly</b>	Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve..	1	Intermediate
<b>Smart Health: Eating Right</b>	In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process.	1	Intermediate
<b>Smart Health: HIPAA Privacy Standards for Everyone</b>	We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly.	1	Fundamental
<b>Smart Health: Managing Your Cholesterol and Blood Pressure</b>	Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands!	1	Intermediate
<b>Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You</b>	Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of exercise, and discuss how to create a successful exercise program that you can use to get started.	1	Intermediate
<b>Smart Health: Proper Posture and Breathing</b>	Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Health: Sleeping - How to Ensure You Are Well-Rested &amp; Energized</b>	Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep.	1	Intermediate
<b>Smart Health: Yoga &amp; Meditation - Finding your Inner Chi</b>	Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the Chi using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each.	1	Intermediate
<b>SMART Instrumentation in Biological and Chemical Treatment</b>	What is SMART instrumentation? The definition and implementation of SMART Instrumentation has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation.	1	Intermediate
<b>Smart Leadership: Leaders, Model the Way (RV-PGM141)</b>	This interactive online course is presented in two modules: Smart Leadership: What Leaders Do      Smart Leadership: Model the Way Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you.	3	Intermediate
<b>Smart Leadership: Leadership Qualities (PGM142)</b>	This interactive online course is presented in two modules: Smart Leadership: Inspire a Shared Vision      Smart Leadership: Encourage the Heart Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In Encourage the Heart, you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations.	3	Intermediate
<b>Smart Leadership: Part 1 - What Leaders Do</b>	Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, <i>The Leadership Challenge</i> , by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series.	1.5	Intermediate
<b>Smart Leadership: Part 2 - Model the Way</b>	What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: Model the Way. This is the second in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 3 - Inspire a Shared Vision</b>	When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 4 - Challenge the Process</b>	If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things. - Dick Nettel, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, Challenge the Process, you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, <i>The Leadership Challenge</i> , written by James Kouzes and Barry Posner.	2	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Leadership: Part 5 - Enable Others to Act</b>	In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, You can't do it alone. Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 6 - Encourage the Heart</b>	Most people rate having a caring boss even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, Encourage the Heart. You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Management: Methods for Motivating and Mentoring Your Team</b>	Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company.	2	Intermediate
<b>Smart Management: Business Essentials</b>	You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind.	2	Intermediate
<b>Smart Management: Coaching for Better Performance</b>	There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan.	1	Intermediate
<b>Smart Management: Data Security</b>	Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information.	1	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate
<b>Smart Management: Effective Performance Review Practices</b>	Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company.	2	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Customer Service</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: Hiring the Right Talent - Sales</b>	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
<b>Smart Management: How to Handle Workplace Challenges</b>	Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles.	1	Intermediate
<b>Smart Management: Key Skills for Managing &amp; Coaching Your Team</b>	Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself.	0.5	Intermediate
<b>Smart Management: Lawful Hiring Practices</b>	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate
<b>Smart Management: Lawful Termination Practices</b>	There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination.	0.5	Intermediate
<b>Smart Management: Managing a Geographically Distributed Workforce</b>	It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process.	0.5	Intermediate
<b>Smart Management: SMART Goals - Setting Effective Targets for Success</b>	Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success.	1	Intermediate
<b>Smart Management: Successfully Transitioning from Team Member to Manager</b>	Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Management: The Art &amp; Science of Delegation</b>	Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tells us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects.	1	Intermediate
<b>Smart Mental Health: Core Values and Finding a Purpose in Life</b>	If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you.	1	Intermediate
<b>Smart Mental Health: Goal Setting and Visualization Techniques</b>	Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives.	1	Intermediate
<b>Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life</b>	This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives.	1	Intermediate
<b>Smart Mental Health: Keys to Successful Parenting</b>	Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible.	1	Intermediate
<b>Smart Mental Health: Managing Anger and Emotions</b>	The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities.	1	Intermediate
<b>Smart Mental Health: Reducing Stress and Anxiety</b>	Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress.	1	Intermediate
<b>Smart Quality: Building Quality Awareness</b>	You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work.	1	Fundamental
<b>Smart Quality: Process Improvement</b>	All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time.	0.5	Fundamental
<b>Smart Quality: Systematic Problem Solving</b>	All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization.	0.5	Intermediate
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Closing the Call</b>	Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Creating Opening Statements</b>	Without a doubt, the opening statement is the most important part of your tele-prospecting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Dealing With Dismissive Objections</b>	One of the most significant components of tele-prospecting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Follow-up Strategies and Tactics</b>	In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospectors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Getting Past Gatekeepers</b>	The key to successful tele-prospecting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Handling Smokescreen and Authentic Objections</b>	Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Overview and Pre-Call Planning</b>	This first course in a 10-part series introduces you to the process of tele-prospecting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospecting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospecting potential, and increase your success at prospecting by making you more effective on the phone. In short, it is to make you a better prospector and salesperson.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Presenting an Offer</b>	Your offer, or sales message, is your opportunity to present your solution to the prospect and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospect to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Qualification and Questioning</b>	Effective questioning is at the very heart of the advanced tele-prospecting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Sales: Advanced Tele-Prospecting - Using Email in the Tele-Prospecting Process</b>	There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospecting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospect. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospecting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message.	0.5	Fundamental
<b>Smart Time Management: 7 Steps to Regaining Control of Your Day</b>	Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day.	1	Fundamental
<b>Smart Time Management: The 80/20 Rule for Making Every Minute Count</b>	In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many.	1	Fundamental
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionals, Generate leads, Learn about other companies and their hierarchies, Leverage powerful tools to find and reach the right people Tap into the knowledge of their network, and Discover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies? An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Putting Your People First - Personnel Administration</b>	The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook) Sexual Harassment, Equal Employment Opportunity (EEO), Drug Free Workplace, The Americans with Disabilities Act of 1990 (Including 2008 amendments)	2	Fundamental
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)</b>	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
<b>Sources of Electricity, Part 1</b>	Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect.	1	Intermediate
<b>SPCC Inspections</b>	The purpose of the EPAs Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems.	0.5	Intermediate
<b>SPCC Run-On and Runoff</b>	The purpose of the EPAs SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals.	0.5	Intermediate
<b>SPCC Secondary Containment</b>	At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges.	0.5	Intermediate
<b>Speed and Space Management</b>	Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management.	0.25	Intermediate
<b>Spill Prevention, Control, and Countermeasures</b>	When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations.	0.5	Intermediate
<b>Steam Boilers</b>	The purpose of a steam boiler is to create steam by applying heat energy to water. The most common source of heat is that from the combustion of an organic fuel like natural gas, fuel oil or coal. The value of steam in a commercial building is that it is an effective medium for distributing heat throughout a building or even a group of buildings. The combination of a steam boiler and steam distribution system means that all the heat generation can be done efficiently in one location and the steam can be easily distributed to all of the places it is needed for heating. In this interactive online course, we will discuss the function of boilers and steam. We will cover different types of boilers, including fire tube boilers and water tube boilers. We will also discuss combustion and steam traps.	0.5	Fundamental
<b>Steam Pipe Safety</b>	Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes.	0.5	Intermediate
<b>Steel Erection Safety</b>	Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents.	0.5	Intermediate
<b>Stop When Unsure</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Storage and Handling of Category 1 and 2 Flammables</b>	GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location.	0.5	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Storage and Handling of Category 3 and 4 Flammables</b>	Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace.	0.5	Intermediate
<b>Storage and Handling of Corrosives</b>	Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times.	0.5	Intermediate
<b>Storage and Handling of Pesticides</b>	Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace.	0.5	Intermediate
<b>Stormwater Pollution Prevention</b>	Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities.	0.5	Intermediate
<b>Storytelling for Business</b>	Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues. Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories.	1.25	Fundamental
<b>Strategic Brand Management</b>	Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands.	2.92	Intermediate
<b>Stress &amp; Change Management for Design and Construction Professionals</b>	Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
<b>Stress Management and Prevention</b>	Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress.	0.25	Intermediate
<b>Stronger Together: Delegation and Task Management</b>	YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Bianca, and Play All Day, the toy company she started with children like herself. Bianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the Play All Day team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!	0.5	Fundamental
<b>Substance Abuse Awareness</b>	Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse.	0.5	Intermediate
<b>Successful Hiring</b>	Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview.	1.25	Intermediate
<b>Successful Negotiation</b>	One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life.	1	Intermediate
<b>Successful Termination</b>	Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee.	1.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Supported Scaffold Safety</b>	This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate
<b>Supporting Change: 01-The 3 Phases of Change</b>	Understand the three phases of change and what to expect in each phase.	0.08	Intermediate
<b>Supporting Change: 02-Reactions to Change</b>	Identify the common reactions to change and strategies to best handle each type of reaction.	1	Intermediate
<b>Supporting Change: 03-Your Path to Supporting Change</b>	Learn and apply the five-step process for helping your team through changes in the workplace.	1	Intermediate
<b>Supporting Change: 04-Mastering Supporting Change</b>	Practice Supporting Change in a full scenario situation.	1	Intermediate
<b>Supporting Change: 05-Supporting Change Health Check</b>	Test your ability to apply Supporting Change concepts in this skills-based scenario assessment.	1	Intermediate
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
<b>Synchronous Motor and Controller Maintenance</b>	Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers.	1	Intermediate
<b>Tanker Rollover</b>	Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover.	0.25	Intermediate
<b>TDLR TEST Basic Electricity I</b>	This two hour interactive online course introduces basic electrical terms and calculations. Simple electrical circuits are used to illustrate the application of Ohm's law including the calculation of voltage, current, resistance and power in various circuit configurations. Basic electrical terms are defined and explained. This course includes a multiple choice quiz at the end. To comply with 2001 AIA and state requirements, all new online courses must be evaluated to confirm the assigned credit hour value. The assigned credit hour value for this course is 2 hours, pending confirmation within 90 days. Please be assured RedVector.com has NEVER had a course NOT meet its assigned credit hour value after evaluation, but has agreed to abide by the 2001 AIA and state requirements regardless. RedVector.com will refund the difference in price should any online course be assigned less credit than originally estimated.	2	Intermediate
<b>Texas Electrician 4 Hour CE Program #5</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #6</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Texas Electrician 4 Hour CE Program #7</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
<b>The Art of Negotiation</b>	From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want.	0.6	Intermediate
<b>The Change Process</b>	In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes. This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours.	2.5	Intermediate
<b>The Hazards of Oxygen and Oxygen Enrichment</b>	This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage.	1	Intermediate
<b>The Power of One-Taking Accountability to Get Results</b>	Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability.	0.5	Intermediate
<b>The Power of Vision</b>	Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path.	0.5	Intermediate
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental
<b>The Risk of Misclassification of Employees &amp; Essentials of I-9 Compliance (RV-PGM144)</b>	In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	1	Fundamental
<b>The Safe Lab Environment</b>	This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>The Safe Operation of Utility Carts</b>	Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include: Daily Inspections (tires, fluids, steering, obstacles) Load limits Occupant & Pedestrian safety Speeding, skidding & slick surfaces Turns, center of gravity & blind spots Backing up, ramps and parking Rules for riders	0.15	Fundamental
<b>The Science of Mold</b>	Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants. This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
The Science of Personal Productivity	Exploring the power of the mind to get more done. Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying Yes to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home.	0.75	Fundamental
The Top 5 Marketing Mistakes	What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course). In this course, Rich Harshaw explains why his famous statement, Everything You Know About Marketing Is Wrong is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results.	3	Fundamental
The Ultimate Project Manager, Chapter 01: Today's Project Manager	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate
The Ultimate Project Manager, Chapter 02: Marketing And Proposals	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
The Ultimate Project Manager, Chapter 03: The Contract Agreement	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
The Ultimate Project Manager, Chapter 04: The Project Management Plan	The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
The Ultimate Project Manager, Chapter 05: The Project Schedule	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
The Ultimate Project Manager, Chapter 06: The Project Budget	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
The Ultimate Project Manager, Chapter 07: Leading The Project Team	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
The Ultimate Project Manager, Chapter 08: Managing Client Relationships	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
The Ultimate Project Manager, Chapter 09: Developing Effective Communications	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate
The Ultimate Project Manager, Chapter 10: The Project Startup	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate

# Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate
The Ultimate Project Manager, Chapter 14: Managing Project Quality	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a substandard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
The Ultimate Project Manager, Chapter 15: Managing Project Risks	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
The Ultimate Project Manager, Chapter 16: Project Financial Management	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
The Ultimate Project Manager, Chapter 17: Project Management And Design Technology	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
The Ultimate Project Manager, Chapter 19: Project Closeout	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate
The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>The WELL Building Standard</b>	How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied.	3	Fundamental
<b>Three-Phase AC Induction Motor Maintenance</b>	This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down.	1	Intermediate
<b>Time Management Basics</b>	You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of.	1.5	Fundamental
<b>Tips for Managing Older Team Members</b>	Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not to do, when managing older team members.	0.2	Intermediate
<b>Toxic Substance Control Act (TSCA) Compliance</b>	With new chemicals and products being introduced into the marketplace on a daily basis, it is imperative that manufacturers properly identify and evaluate new products prior to being released for use. This course will discuss how the Environmental Protection Agency (EPA) regulates polychlorinated biphenyls (PCBs) use in the United States. In addition, this course will discuss compliance strategies based on the Toxic Substance Control Act's sections and titles.	1	Fundamental
<b>Transformer Maintenance</b>	This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them.	1	Intermediate
<b>Transformers</b>	Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles.	1	Intermediate
<b>Transformers, Breakers, and Switches</b>	This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches.	1	Intermediate
<b>Transition to Leadership</b>	New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role.	0.6	Intermediate
<b>Transmission and Distribution: Distribution Line Installation and Removal</b>	Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal. You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment.	1	Intermediate
<b>Transmission and Distribution: Distribution Line Replacement</b>	The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors.	1	Intermediate
<b>Transmission and Distribution: Focus on Distribution</b>	The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform.	1	Intermediate
<b>Transmission and Distribution: Framing Specifications and Basic Construction Diagrams</b>	The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Transmission and Distribution: Introduction to Transmission and Distribution Systems</b>	The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer.	1	Intermediate
<b>Transmission and Distribution: Overhead Distribution Systems</b>	The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed.	1	Intermediate
<b>Transmission and Distribution: Pad-Mounted Transformers and Switchgear</b>	The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer.	1	Intermediate
<b>Transmission and Distribution: Power Quality</b>	This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems.	0.75	Intermediate
<b>Transmission and Distribution: Service Installation</b>	Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer.	1	Intermediate
<b>Transmission and Distribution: Substations and Switchyards</b>	Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents.	1	Intermediate
<b>Transmission and Distribution: Transmission Line Installation</b>	The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworker's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators.	1	Intermediate
<b>Transmission and Distribution: Transmission Line Safety</b>	This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction.	1	Intermediate
<b>Transmission and Distribution: Underground Residential Distribution Systems</b>	Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers. The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently.	1	Intermediate
<b>Transmission and Distribution: Using Line Test Equipment</b>	The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems</b>	Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities.	1	Intermediate
<b>Transmission and Distribution: Working on Distribution Poles</b>	The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work. This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends.	1	Intermediate
<b>Transporting Hazardous Materials</b>	Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them. In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials.	0.5	Intermediate
<b>Tree Trimming Safety</b>	Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job. Topics covered also include: Saws, axes, and pruning tools Chainsaw use Personal protective equipment Safety belts, climbing spikes, and harnesses Working from ladders, boom trucks or aerial baskets Planning and other considerations that need	0.25	Fundamental
<b>Trenching and Excavation Safety</b>	This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices.	0.5	Intermediate
<b>Trenching and Excavation Soil Properties</b>	This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices.	0.25	Intermediate
<b>Triethylaluminium Safety Awareness</b>	This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE.	1	Intermediate
<b>Troubleshooting Systems and Circuits</b>	Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems.	1	Intermediate
<b>Truck Mounted Cranes</b>	Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes.	0.5	Intermediate
<b>Turnover</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Turpentine Awareness</b>	Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards.	0.25	Intermediate
<b>Turret Truck Safety</b>	A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures.	0.25	Intermediate



## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Underground Storage Tank Requirements (UST)</b>	Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overfill control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations.	0.5	Intermediate
<b>Understanding Business Ethics</b>	In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company.	2	Intermediate
<b>Understanding Fire Sprinkler Drawings and Calculations</b>	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
<b>Understanding Gender and Gender Identity</b>	Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self.	0.2	Intermediate
<b>Understanding HIPAA</b>	In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information.	4	Intermediate
<b>Understanding Moisture Intrusion and Its Impact on Mold Growth</b>	The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	1	Fundamental
<b>Understanding Workers' Compensation for Employees (V15)</b>	What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Understanding Workers' Compensation for Employers V14</b>	Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Uninterruptible Power Supply (UPS) System Efficiency</b>	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Universal Waste Storage and Handling</b>	There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes.	0.5	Intermediate
<b>Unstable, Reactive, and Energetic Compounds</b>	Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity.	0.5	Intermediate
<b>Use of Ohm's and Kirchoff's Laws in DC Circuits</b>	The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as I=E/R. Kirchoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Using Electrical Test Equipment	Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment.	1	Intermediate
Valves: Basic Types and Operation, Part 1	In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections.	0.5	Intermediate
Valves: Basic Types and Operation, Part 2	The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves.	1	Intermediate
Valves: Electric and Hydraulic Actuators	This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators.	2	Intermediate
Valves: Introduction to Actuators	Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular.	1	Intermediate
Variable Speed Drives: Common Applications	Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs.	1	Intermediate
Variable Speed Drives: Controllers and Troubleshooting, Part 1	Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems.	1	Intermediate
Variable Speed Drives: Controllers and Troubleshooting, Part 2	Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems.	1	Intermediate
Variable Speed Drives: Installation	Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible.	1	Intermediate
Variable Speed Drives: Introduction to VSDs	Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world.	1	Intermediate
Variable Speed Drives: Programming AC Controllers	This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming.	1	Intermediate
Variable Speed Drives: Programming DC Controllers	Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors.	1	Intermediate
Variable Speed Drives: System Troubleshooting, Part 1	Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems.	1	Intermediate
Variable Speed Drives: System Troubleshooting, Part 2	Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems.	1	Intermediate
Variable Speed Drives: Systems and Integration	When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Vehicle-Mounted Aerial Device Safety</b>	Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs.	0.75	Intermediate
<b>Violence in the Workplace</b>	Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations.	0.25	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #1</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #2</b>		3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #3</b>	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #4</b>	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate
<b>Volatile Solvent Spill Response</b>	Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid. Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration.	0.25	Intermediate
<b>Volt/Ohm/Amp Meters</b>	Volts, ohms and amps are important characteristics of all electrical circuits. There are dedicated instruments for measuring each of these quantities, but it more is common to use a single meter that is capable of measuring all three. This interactive online course covers how to take voltage, amperage, and resistance measurements, as well as the precautions to take when making such electrical measurements.	0.5	Fundamental
<b>Walking and Working Surfaces</b>	Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs.	0.5	Intermediate
<b>Warehouse and Loading Dock Safety</b>	Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures.	0.5	Intermediate
<b>Warning Signs and Labels (BBWSAL0CEN)</b>	This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
Washington Electrical Contractor 4 hour program #1	This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha	4	Intermediate
Wastewater Treatment and Reclamation: Asset or Liability	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
Water Treatment Basics	Water treatment affects our everyday lives, from the water we drink to the sewage we flush, from the wash water we discharge to the cooling water used in manufacturing and in buildings. This interactive online course will cover the basics of water treatment in large buildings and is directed toward the building manager or technician. Operation of cooling towers and boilers will be discussed, along with control of scaling, fouling, pH and bacteria that can lead to Legionnaires' disease.	0.5	Fundamental
Water-Based Fire Suppression Systems	With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost \$12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project.	1	Fundamental
Welding Safety	Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards.	0.5	Intermediate
What's New in Excel 2019	Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More! The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike.	0.75	Intermediate
What's New in PowerPoint 2019	Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019! Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone.	1.25	Intermediate
What's New in Word 2019	New Editing and Image Features Improve The Worlds Most Popular Document App. The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike.	1.25	Intermediate
What's New in Adobe CC 2015?	Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color.	1.5	Intermediate
What's New in Office 2016?	Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents. Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016.	1	Intermediate
Wind Design Using ASCE 7-16	Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard.	2	Intermediate
Windows 10 Essentials	This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits.	1	Fundamental
Windows 8.1 Essentials	This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95.	0.5	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Winning Proposals 1: Preliminary Steps &amp; Planning Strategies</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 2: Effective Design &amp; Development</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 3: Components of a Successful Proposal</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Wire Rope Basics</b>	Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load.	0.5	Intermediate
<b>Wire Rope Safety and Operation</b>	Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers.	0.25	Intermediate
<b>Work Life Balance</b>	Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire.	0.5	Intermediate
<b>Work Order Management: CMMS Basics</b>	Did you know a CMMS system can be configured to notify management via smartphone or email, if there is an equipment breakdown at any time of the day or night? Computerized Maintenance Management Systems (CMMS) have been around for many years. They can offer many advantages when an organization is trying to systematize and standardize the maintenance activities related to that organization's assets. But that's not all a properly designed and utilized CMMS can do. This interactive online course covers the benefits of an effective CMMS, work types related to maintenance, reactive and breakdown maintenance, and the purpose of a problem code and a resolution code.	0.5	Fundamental
<b>Work Order Management: Workflow Management</b>	Did you know breakdowns and unplanned maintenance can cost as much as ten times the amount than that of a good preventive maintenance program would cost? Utilizing workflow management within a Computerized Maintenance Management System (CMMS), will result in higher department efficiency and better financial management. This interactive online course covers how to manage the maintenance workflow within an organization, utilizing an efficient CMMS.	0.5	Fundamental
<b>Work Zone Driving Hazards</b>	Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone.	0.25	Intermediate

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Work Zone Safety</b>	A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a one size fits all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course.	0.5	Intermediate
<b>Worker Right to Know (RTK)</b>	Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet.	0.5	Intermediate
<b>Working Effectively with Building Officials and Inspectors</b>	Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials.	1	Fundamental
<b>Working Over or Near Water</b>	Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices.	0.47	Intermediate
<b>Workplace Hazardous Materials Information System (WHMIS)</b>	The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements.	0.5	Intermediate
<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

## Facilities Management & Maintenance Complete (Continued)

Title	Description	Hours	Level
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of workplaces in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental
<b>Writing in Plain Language</b>	Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job.	1.25	Fundamental
<b>WSI - Groundskeeping Safety</b>	After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training.	0.25	Fundamental







# AEC Complete

Title	Description	Hours	Level
<b>10 Hour RedVector AEC Success Certificate Program: A Comprehensive Professional Development Program for AEC Professionals</b>	Comprised of 12 interactive video courses delivered by three of the most dynamic trainers in the AEC industry, the RedVector AEC Success Certificate Program provides in-depth, AEC-specific training on topics such as business development, sales, decision making, time management/billable hours, communication, networking and more. This modern, online training program will provide engineers, designers, project managers and other AEC Professionals with the soft skills and knowledge needed to advance their careers. Meanwhile, this online professional development program can help firms reduce costs and win more business in today's highly-competitive market. Professionals who successfully complete this rigorous program will be awarded an official RedVector AEC Success Certificate of Completion, which can be proudly displayed in the workplace, documented on resumes and even utilized in a firm's marketing collateral. The courses contained in this package are: AEC Success: 7 Steps for using LinkedIn Effectively (RV-11197) AEC Success: Conflict Resolution in the Workplace (RV-11196) AEC Success: Five Steps to Effective E-mail Management (RV-11193) AEC Success: How to Create a Focused, Productive and Low Stress Career and Life (RV-11194) AEC Success: How to Find and/or Become a Mentor (RV-11195) AEC Success: Strategies for a Successful Interview (RV-11143) AEC Success: Business Development and Sales (RV-10869) AEC Success: Time Management and Billable Hours (RV-10868) AEC Success: Effective Decision Making (RV-10867) AEC Success: How to Become a Top-Notch Industry Leader (RV-10775) AEC Success: How to Communicate and Present Effectively (RV-10776) AEC Success: Networking and Relationship Building (RV-10777)	10	Fundamental
<b>10/04/2021: LIVE INTERACTIVE WEBINAR, Geotechnical Engineering: Testing for Design and Construction, Monday, October 4, 2021, 11am-1pm Eastern</b>	Laboratory testing of soils and rocks is a fundamental element for the development of infrastructure projects. The complexity of testing required for a particular project may range from a simple moisture content determination to sophisticated triaxial strength testing. This is why professionals within the A/E/C industry need to be capable of having a basic understanding on the methods and processes used for the geotechnical testing of soils to be used in construction projects. In this course, engineers, land surveyors, planners, contractors and design professionals will learn the most common geotechnical tests and methods used to determine the design and construction properties of soils and rocks for the construction of infrastructure projects. Note: This is a live webinar delivered via GoToWebinar. Session instructions will be emailed to you 24-48 hours prior to the webinar and the morning of the webinar. If you have not received your instructions for any reason please call Client Support (1-866-546-1212) the day of the event. Webinars are live and interactive. Students will have the ability to directly interact with and ask questions of the presenter.	2	Advanced
<b>10/06/2021: LIVE INTERACTIVE WEBINAR, Universal Design Features in Hotel Entrances, Lobbies, and Restaurants, Wednesday, October 6, 2021, 11am-12pm Eastern</b>	Nationally acclaimed expert Rosemarie Rossetti, Ph.D. understands the hospitality industry from the perspective of someone who uses a wheelchair. Guided by her personal experiences, extensive travels, and keen insight, take a roll with her through sample hotels. See common problems and challenges in hotel entries, lobbies, and restaurants that design and layout present to people with disabilities. Come away with solutions that provide more accessibility, greater independence, and increased safety for guests. Go beyond the ADA requirements and learn about inclusive universal design for all guests, regardless of their limitations. Note: This is a live webinar delivered via GoToWebinar. Session instructions will be emailed to you 24-48 hours prior to the webinar and the morning of the webinar. If you have not received your instructions for any reason please call Client Support (1-866-546-1212) the day of the event. Webinars are live and interactive. Students will have the ability to directly interact with and ask questions of the presenter.	1	Fundamental
<b>11/08/2021: LIVE INTERACTIVE WEBINAR, Geotechnical Engineering: Stress and Strain in Soils, Monday, November 8, 2021, 11am-1pm Eastern</b>	All projects within the A/E/C industry begin with the development of soil foundations. And as such, the selected foundation design will be the basis of support for the rest of the project. Professionals working in land development and infrastructure projects need to be capable of identifying the native soil behavior within their projects. In this course, engineers, architects, planners, contractors and design professionals will learn how soil behavior is controlled by the interaction of three phases, which support the different strains and stresses experienced by soils. Note: This is a live webinar delivered via GoToWebinar. Session instructions will be emailed to you 24-48 hours prior to the webinar and the morning of the webinar. If you have not received your instructions for any reason please call Client Support (1-866-546-1212) the day of the event. Webinars are live and interactive. Students will have the ability to directly interact with and ask questions of the presenter.	2	Advanced
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 1</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 1, will explain chapters 1 through 5 of the IgCC. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Green Construction Code (IgCC) Fundamentals Part 2</b>	The International Green Construction Code (or IgCC) Fundamentals series will provide an overview of the critical concepts of the IgCC. The series will address how the IgCC regulates new construction, existing construction, multiple occupancy classifications and community development. It will also address how the IgCC relates to ASHRAE/189.1, Standard for the Design of High-Performance Green Buildings. This particular course, Part 2, will explain chapters 6 through 12 of the IgCC, as well as the appendices. Developed in partnership with the International Code Council.	2	Fundamental
<b>2012 International Residential Code (IRC) Update</b>	It is important to have an up-to-date residential construction code addressing the design and construction of one- and two-family dwellings and townhouses to protect the health and safety of the public as well as provide affordable housing. There have been key changes made to the International Residential Code® (IRC®) since the 2009 edition. This course will identify important changes in the IRC from 2009 to 2012 edition. Participants will be presented with those changes that will most impact their use of the code when they adopt the 2012 IRC. The learner will receive an overview of the most important code changes. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>2015 International Building Code Essentials – Code Administration, Enforcement, and Building Planning</b>	Some buildings have a high level of hazards that may affect people inside and outside the building, as well as the emergency responders. This interactive online course teaches you about the International Building Code and how it's used to regulate building occupancy and hazards. You will learn about the code adoption process and how the code is enforced through the review of construction plans and the inspection of the work. You will also learn about the differences between the types of construction and how they are addressed in the design of a building. This course will outline the process to determine the size of buildings based on the occupancy classification and type of construction. Developed in partnership with the International Code Council.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>2015 International Building Code Essentials – Fire Safety</b>	Fire and smoke are the leading causes of death in buildings. Fire can spread rapidly within a building and, in some cases, from building to building. This interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Health Safety</b>	For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities. In this interactive online course, you will learn about the International Building Code requirements for providing a healthy environment in which to live and work. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code Essentials – Life Safety</b>	Whenever an emergency situation happens in a building, it is important to evacuate people in a safe and efficient manner. This interactive online course teaches you about the International Building Code and how it regulates exit systems. You will learn how to get people out of a building in an emergency and how people with physical disabilities get access to services just like everyone else. You will also learn code requirements designed to protect people from building hazards. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Building Code Essentials – Structural Safety</b>	Many structural forces are placed on a building over the intended life of the structure. Natural or environmental forces, as well as man-made loads, are placed on the building. The basic design parameters outlined in the code for the design of a structure provide a minimum standard to ensure that the building withstands the forces applied to it. In this interactive online course, you will learn about how the International Building Code regulates the structural design of buildings, as well as how it regulates the kinds of materials used in the construction of buildings. Developed in partnership with the International Code Council.	1	Fundamental
<b>2015 International Building Code: Significant Changes to Structural Provisions</b>	This course is an overview of the significant structural changes to the 2015 International Building Code® (IBC®) and referenced standards, including ASCE/SEI 7-10. Topics include changes to scope and submittal requirements, deflection limits, and new referenced wood materials, live loads for façade safety equipment, photovoltaic panels and seismic maps. Developed in Partnership with the International Code Council.	2	Intermediate
<b>2015 International Energy Conservation Code - Commercial Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for commercial buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of commercial building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in commercial building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Energy Conservation Code - Residential Essentials</b>	This course will demonstrate the critical concepts of the 2015 International Energy Conservation Code for residential buildings. These concepts provide a basis for the correct use of the code in the design, plan review, inspection, and analysis of residential building projects. It will provide a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations. You will be able to apply the code in clear-cut situations and build your understanding of the intent of the code when asked to make code compliance decisions in residential building projects. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – General Safety Precautions</b>	How well versed are you in the safety requirements laid out by the 2015 International Fire Code Essentials? In this online interactive course we give you detailed instruction in code administration, general precautions against fire, and emergency planning and preparedness. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Hazardous Materials</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn the basics of the fire code and how to properly apply the code to the most commonly encountered hazards. You will also review the general requirements for hazardous materials and some of the requirements for the proper storage and handling of compressed gasses and flammable and combustible liquids. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Site and Building Services</b>	Fires can cause significant injury or loss of life. It is important to have services in place so fire fighters can quickly gain access to a building in the event of an emergency. This interactive online course teaches you about the International Fire Code and how it regulates building services. You will learn about fire service features including roadways for fire department access, water supply manual firefighting operations and means of identifying buildings through its address or other markings. You will also learn about selection and installation requirements for decorative materials and furnishings that could become sources of fuel for fires. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code Essentials – Special Processes and Building Uses</b>	Proper handling of flammable and combustible materials can significantly reduce hazards to property and people. This interactive online course teaches you about the 2015 International Fire Code® (IFC®) and regulations on handling and storage of combustible material. You will learn about sources of ignition, storage, use and handling of flammable and combustible liquids and the operation and maintenance of flammable finishing activities. You will also learn about combustible dust production operations and fire safety during construction and demolition. Developed in partnership with the International Code Council.	2	Fundamental
<b>2015 International Fire Code® Essentials – Fire/Life Safety Systems and Features</b>	Unwanted fires injure and kill thousands annually and inflict a monetary impact on communities. Did you know that over 40 percent of the businesses that experience a fire never reopen because they lose their customer base? That is why fire code enforcement is an important public safety function. In this interactive online course, you will learn about provisions requiring a fire protection system in the 2015 International Fire Code® (IFC®) and the 2015 International Building Code® (IBC®), including required documents, testing, and procedures for impairment and monitoring. You will also learn requirements for automatic sprinkler systems, including key terms, design and installation standards, types, and other vital requirements. Finally, you will explore means of egress systems and various components, such as load, width, distance, illumination, and maintenance. Developed in partnership with the International Code Council®.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
2015 International Fire Code®: Significant Changes	Maintaining the life safety of building occupants, the protection of emergency responders, and limiting the damage to a building and its contents is of paramount importance. The purpose of 2015 International Fire Code®: Significant Changes is to familiarize fire officials, building officials, plans examiners, fire inspectors, design professionals and others with many of the important changes in the 2015 International Fire Code (IFC®). This interactive, online course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code adoption process. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Plumbing, Mechanical, and Fuel Gas Code: Significant Changes	Understanding and following plumbing, mechanical, and fuel gas code requirements can significantly reduce hazards to property and people. This interactive online course teaches you about important changes to the plumbing, mechanical, and fuel gas codes. This course is designed to assist code users in identifying the specific code changes that have occurred and, more important, in understanding the reasons behind the changes. Developed in partnership with the International Code Council.	1	Fundamental
2015 International Residential Code (IRC): Significant Changes	This course reviews and analyzes selected significant changes from Chapters 1-4 of the 2015 International Residential Code (IRC). It assists building officials, plans examiners, inspectors and design professionals in identifying the specific code changes in Chapters 1-4 that have occurred and understanding the reason behind the changes. This course uses the Significant Changes to the International Residential Code, 2015 Edition. Topics include changes to accessory structure scoping, guard height, wind speed and exposure category determination, discussion of a new standard for sunrooms, new tables for minimum footing size, clarification of townhouse separation, emergency escape and rescue openings, stairway illumination and fire protection of floors, and a new requirement for a written statement of the reason for disapproval of an alternate material or method. Developed in Partnership with the International Code Council.	3	Intermediate
2015 International Residential Code® Essentials – Code Administration and Site Development	Did you know that the International Residential Code® (IRC) is a comprehensive, stand-alone residential code that establishes minimum regulations for the construction of one- and two-family dwellings and townhouses up to three stories in height, including provisions for fire and life safety, structural design, energy conservation and mechanical, fuel-gas, plumbing and electrical systems? These codes serve primarily to protect the safety and welfare of the building occupants and the public. In addition to providing a better understanding of the code provisions and their development, the additional content of this course is organized to correspond to the order of construction, beginning with sitework. Structural topics include conventional footings and foundations (including the fundamentals of soil capacity). Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Health and Safety	The health, safety, and welfare of the dwelling occupants is of primary concern to anyone involved in the design, construction, or inspection of residential buildings. The International Residential Code® (IRC) sets minimum requirements for the most commonly encountered building practices. In this interactive, online course you will explore such topics as a safe means of exiting the building and protection from falls and from the hazards associated with breaking glass. The code also sets minimum room dimensions to support a healthy living environment. Other requirements in the code address fire safety and air supply and support concerns for chimneys and fireplaces. Developed in partnership with the International Code Council®.	1	Fundamental
2015 International Residential Code® Essentials - Protection, Utilities, Conservation, and Hazards	Protecting the public is an important part of your job. As part of its purpose statement to protect the health and general welfare of the public, the International Residential Code® (IRC) sets minimum requirements for durable interior and exterior finishes, as well as for providing weather protection. Permanently installed equipment and systems that control environmental conditions of a dwelling are significant in what you plan for and do. Part of this course will focus on common heating, ventilating, and air conditioning (HVAC) systems, gas-fired appliances and gas piping systems. The IRC also covers plumbing system design and installations typical of dwelling construction, as well as focusing on commonly encountered electrical installations for services, branch circuits, devices and fixtures in IRC-regulated buildings. Also addressed in this interactive, online course are the prescriptive methods of the IRC for effective use and conservation of energy through proper design and construction of dwellings and information on structural and environmental hazards often associated with dwelling and accessory building construction. Developed in partnership with the International Code Council®.	2	Fundamental
2015 International Residential Code® Essentials - Structural	When following conventional construction of residential buildings, protecting the safety and welfare of the building occupants and the public is a primary concern. But as a professional, you don't want to feel backed into a corner by standards. The 2015 International Residential Code® provides comprehensive, easy to use standards that afford the greatest design flexibility in recognizing other methods and materials of construction. This interactive, online course explains the difference between prescriptive and performance requirements. Prescriptive structural design requirements to resist the forces of wind, earthquake and snow are described and illustrated in an easy-to-understand way. Structural topics include conventional wood floor, wall and roof framing, and engineered wood products. Developed in partnership with the International Code Council®.	1	Fundamental
2015 National Design Specification for Wood Construction	In order to maintain the safety and welfare of the population in the United States, the structural design requirements as defined in the building codes are consistently updated. Traditionally this occurs in 3 year cycles. In 2015 the American Wood Council updated the National Design Specification for Wood Construction (NDS). As part of the update there were significant changes to the Special Design Provisions for Wind and Seismic (SDPWS). The last significant change to the SDPWS occurred in 2008. This interactive online course will highlight the significant changes in the NDS including the addition of Cross Laminated Timber. Key criteria will be discussed and numerical examples will be provided illustrating the design changes.	1	Fundamental
2017 NEC Changes: Communications Systems	Proper wiring of electrical systems is essential to protecting life and property. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables.	1	Intermediate
2017 NEC Changes: Special Equipment	Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>2017 NEC Changes: A New Process and Five New Articles</b>	The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids.	1	Intermediate
<b>2017 NEC Changes: Appliances and Equipment</b>	Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners.	1	Intermediate
<b>2017 NEC Changes: Branch Circuit, Feeder and Services</b>	Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	2	Intermediate
<b>2017 NEC Changes: Conductors and Wiring Methods</b>	Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. We will discuss the listing requirements in the Chapter 3.6 section and the .30 sections for securing and supporting throughout chapter 3. We will also examine 336.10 Uses Permitted for (TC cable) or tray cable and 338.10(B)(4)(a) Uses Permitted for service entrance cable or (SE cable), and review 344.14 Dissimilar Metals in Rigid Metal Conduit Systems (RMC). Other topics covered in the course include 350.28 Trimming of Liquidtight Flexible Metal Conduit (LFMC), 358.10 Uses Permitted for EMT, 376.20 Conductors in Parallel for Metal Wireways, and 392.22(A), which covers the number of conductors in (cable trays).	1	Intermediate
<b>2017 NEC Changes: Enclosures and Boxes</b>	Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings.	1	Intermediate
<b>2017 NEC Changes: General Requirements</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	1	Intermediate
<b>2017 NEC Changes: Hazardous Locations</b>	Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	1	Intermediate
<b>2017 NEC Changes: Overcurrent Protection and Grounding &amp; Bonding</b>	Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others.	1	Intermediate
<b>2017 NEC Changes: Receptacles and Switches</b>	How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles.	1	Intermediate
<b>2017 NEC Changes: Special Occupancies</b>	The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	1	Intermediate
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility Scoping Requirements (Internet)</b>	This interactive online course covers the scoping provisions of the FBC-A, Chapter 2. Discussion items will include among others where the code is applicable, vertical accessibility, disproportionate costs, exceptions, accessible routes, parking, and a number of specific applications.	1	Advanced
<b>2020 Florida Building Code Advanced 7th Edition: Accessibility, Application and Administration (Internet)</b>	The Florida Building Code governs the design, construction, erection, alteration, modification, repair, and demolition of public and private buildings, structures, and facilities in the state. The Code is updated every three years and is often amended annually to incorporate interpretations and clarifications, so it is important to stay informed of updates and changes. In this interactive, online course, we will discuss the accessibility provisions of the Florida Building Code. We will cover statutory provisions, the format of the code, the use of advisory comments within the code, and the application and administration of the code.	1	Advanced

## AEC Complete

Title	Description	Hours	Level
<b>2020 NEC® Changes: Backup Power, Energy Storage, and Limited-Energy</b>	This course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	1	Intermediate
<b>2020 NEC® Changes: Branch Circuit GFCI Protection</b>	Believe it or not, GFCI protection first appeared in the 1962 edition of the NEC®, where it applied to underwater lighting for swimming pools. Many changes have been made to the Code since then. This interactive online course will help walk you through some of the most recent changes concerning this live safety device, as well as review other changes associated with branch circuits. We will address changes to Chapter 2 Wiring and Protection, noting updates to Articles 100, 200, and 210.	1	Intermediate
<b>2020 NEC® Changes: Conductors, Wiring Methods, and Enclosures</b>	This interactive online course covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	1	Intermediate
<b>2020 NEC® Changes: Devices, Lighting, and Gear</b>	This course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	1	Intermediate
<b>2020 NEC® Changes: Equipment for General Use</b>	This course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries.	1	Intermediate
<b>2020 NEC® Changes: Focus on Wiring Methods</b>	This interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings.	1	Intermediate
<b>2020 NEC® Changes: General Requirements</b>	The National Electrical Code® Style Manual has been in existence since 1969 and has been updated nine times since its inception. There was quite a bit of activity in the 2020 NEC® concerning definitions. In this interactive online course, we will cover new definitions added, and existing definitions that have been revised or relocated in the 2020 NEC®. We will also review new and revised requirements for equipment installation, labeling, marking and working space.	1	Intermediate
<b>2020 NEC® Changes: Overvoltage and Grounding &amp; Bonding</b>	This interactive online course covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications.	1	Intermediate
<b>2020 NEC® Changes: Process Review and Updated Articles</b>	This course will briefly discuss the 2020 implementation of the National Fire Protection Association® (NFPA®) new revision process for considering changes to the National Electrical Code® (NEC®). You will be introduced to the 2020 NEC® new articles covering Overvoltage Protection, Medium Voltage (MV) Cable, and Type P Cable. We'll show you how and where the NFPA® has reorganized and relocated articles to expand on Manufactured Buildings and Relocatable Structures. Additionally, we'll review the two articles that were merged into one to cover Marinas, Boatyards, Floating Buildings and Commercial and Noncommercial Docking Facilities. And finally, we'll summarize the changes made to Article 800 General Requirements for Communications Systems.	1	Intermediate
<b>2020 NEC® Changes: Solar PV Systems and Interconnected Power Systems</b>	Photovoltaic (PV) systems use the energy from the sun to generate electricity. This electricity can be used to power small, rooftop systems to large-scale utility operations and everything in between. This interactive, online course is designed to give you an overview of Article 690 Solar Photovoltaic Systems, and Article 705, Interconnected Electrical Power Production Sources of the 2020 National Electrical Code® (NEC®). Notable changes in the articles for photovoltaic systems and interconnected electric power production sources include changes to PV overcurrent protection, disconnecting means, and language for interconnection of electric power production sources.	2	Intermediate
<b>2020 NEC® Changes: Special Equipment</b>	Did you know the NEC® 2020 has new regulations for using your electric vehicle as a power source? This interactive online course covers the changes in Articles 600 through 695 of the National Electrical Code®, other than Articles 690 and 691 (PV systems). Notable changes include increasing the requirement for selective coordination for elevators; multiple changes addressing electric vehicles used as a power source; further restrictions on under-floor wiring in ITE rooms; listing, inspection, and GFCI protection requirements for pools and bodies of water, and reduced protection requirements for fire pump wiring.	1	Intermediate
<b>2020 NEC® Changes: Special Occupancies</b>	The National Electrical Code® (NEC®) is updated every three years, so it is important that contractors, electrical professionals and safety professionals stay updated on these changes. This interactive, online course covers the changes in Articles 500 through 590 of the National Electrical Code®. Notable changes are addressing the use of lasers in hazardous locations; clarifying the GFCI requirements throughout Chapter 5; addressing the applicability of Article 517's requirements; major changes for marinas, boatyards, and similar locations; and new requirements for large, temporary wiring installations.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>2020 NEC® Changes: Wiring and Protection</b>	Changes related to load calculations in the 2020 NEC® will place a new emphasis on maintaining equipment. Since reconditioned equipment requirements are completely new to the NEC®, we'll show you how, and you'll see how some changes related to these calculations will have a drastic effect on services sizes. This interactive online course will review various wiring and protection related changes to the 2020 NEC®. Included will be a review of requirements associated with arc fault protection, receptacle locations, feeders, load calculations, and overcurrent protection.	2	Intermediate
<b>3-way Communication</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional 3-way Communication human performance tool and discover its guiding purpose of clear, concise communication and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>8-Hour HAZWOPER Refresher</b>	This series of courses meets the 8-hour OSHA HAZWOPER annual refresher training requirement for workers at hazardous waste sites. While this set of courses is designed to meet OSHA's HAZWOPER annual refresher requirements, your employer must provide any other site-specific and job-specific training deemed necessary. This set of courses does NOT cover: Incident Review Requirements - To meet OSHA's HAZWOPER incident review requirement, your employer must provide incident review training and any other site-specific and job-specific training deemed necessary by your employer. Hands-On Training - Your employer is expected to provide hands-on training, have a qualified trainer available for questions, and determine what additional training is needed to satisfy your training program requirements.	8	Intermediate
<b>A Better Construction Contract</b>	This 2-hour online interactive course examines two types of Owner-Contractor agreements: (1) stipulated sum, and (2) cost plus a fee with a guaranteed maximum price (often called GMP) The use of general conditions with both types of contracts is assumed in this course and particular attention is paid to the general conditions as they constitute the bulk of the contract whether it is a stipulated sum or GMP type. This course assumes some familiarity with the AIA documents, the contractually defined roles of the Owner, Contractor, and Architect, and the interrelationship of the Contract Documents, such as the Agreement, General Conditions, and Drawings and Specifications. We will follow the organization of the AIA documents as a starting point. Consequently, the term architect will typically be employed, but the principles discussed in this course can apply to other design professionals as well. References to relevant sections of the AIA documents are included in parentheses throughout. As we review the two types of Owner-Contractor agreements, this course identifies major contract issues, performance problem areas, and definitions of important terms. Issues which are likely to cause conflict or generate disputes are identified. Subjects which often appear obscure to design professionals, such as insurance, are discussed. A test is included in at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>A Hydrology Primer for Engineers and Design Professionals</b>	Many design professionals were introduced to hydrology concepts when they started their careers. But the science and terminology of hydrology continues to evolve. Engineers and other design professionals need to understand hydrology concepts in order to design appropriately. This online interactive course gives you the hydrology cycle, types of natural storage and infiltration, recharge and base flow, surface runoff, peak rates of flow, I-D-F curves, hyetographs and hydrographs, runoff volume, NRCS hydrologic soil groups, and concentration, as well as a lengthy discussion on the differences between the Rational Method and the federal peak flow methods (using TR-20 and 55).	2	Intermediate
<b>A Leaders Guide to Decision Making</b>	Sometimes choices are tough. We second guess our decisions or stall making one to start with. In this Effective Leaders Guide for making decisions, learn the steps to make more strategic choices and to feel comfortable with the decisions you have made. Using application exercises and a rich multimedia process you will soon be more comfortable in your own skin and more effective with your choices by applying what you have learned in this foundational course.	0.5	Intermediate
<b>A Manager's Guide to Performance Appraisals</b>	This 1-hour interactive online course covers the techniques required in employee performance evaluation. From first day expectations to end of year reviews, this course teaches you as a manager the professional way to get the best from your employees each and every day. Through concise explanations of the roles of both manager and employee, you will cover such topics as setting performance expectations, establishing goals, roles & responsibilities, managing performance, progress review, determining strengths and weaknesses and managing both. Included are helpful chart/log templates for Goal Statements, Descriptions and Evaluation of Competencies, Self Assessment and more. There is a test included at the end of this course.	1	Intermediate
<b>A Professional Engineer's Standard of Care</b>	The public has the right to expect that professional engineers will exercise their knowledge and skill in a manner consistent with good moral behavior. In this interactive online course, we will explore the ethical requirement for professional engineers to meet an agreed-upon standard of care. We will discuss this standard of care and explore the importance of ethical behavior and ethical practice in terms of our responsibility to the public.	1	Intermediate
<b>A Wetland Primer for Design Professionals</b>	An understanding of wetlands is increasingly important for design professionals, including architects, engineers, land surveyors and landscape architects. This 1-hour online course will acquaint you with the changed perception of wetlands in North America, contemporary definitions of wetlands and types of wetlands found on this continent. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>A Wetland Primer, Advanced: Field Evaluation &amp; Permitting Considerations</b>	This 2-hour interactive online course is a follow-up to 'A Wetland Primer For Design Professionals' by the same author. Although a basic understanding of wetlands--crucial for architects, engineers, land surveyors and landscape architects--is mastered in that first course, design professionals often need a broader understanding of why wetlands play an increasingly important role in site considerations, and how they are identified. This course does exactly that, in a easily understood series of steps. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Aboveground Storage Tank Requirements (AST)</b>	Any storage container of at least 55 gallons that is completely aboveground, partially buried (<10%), or located in a bunker or subterranean vault is considered an aboveground storage tank, or AST. The majority of storage tanks hold petroleum products, so ASTs pose a significant threat to the environment. To prevent leaks, ASTs are regulated by the Spill Prevention, Control, and Countermeasures (SPCC) rule. This course will summarize the SPCC regulations that apply to aboveground storage tanks.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Aboveground Storage Tanks, Part 1</b>	This course provides information about several types of aboveground storage tanks, associated auxiliary equipment, and general safety concerns related to these tanks and the materials they contain.	1	Intermediate
<b>Aboveground Storage Tanks, Part 2</b>	Process facilities use aboveground storage tanks to meet a variety of operating needs. Operators who work with these tanks need to know what their responsibilities are and how to carry them out safely. This course covers operator responsibilities in areas such as routine inspections, sampling, gauging, and material transfers.	1	Intermediate
<b>AC Fundamentals Review</b>	This course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment. Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person.	1	Intermediate
<b>AC Generator Basics</b>	A generator is a device that converts mechanical energy into electrical energy. AC generators are commonly used to provide electrical energy for a wide range of commercial, domestic, and industrial applications. AC generators vary considerably in size, from small ones like automobile generators, to large generators that can supply power needs for a large city. The purpose of this training course is to focus on AC generators that are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts).	1	Intermediate
<b>AC Generator Maintenance</b>	The purpose of this course is to provide an overview of the operation and maintenance of large alternating current (AC) generators, which are primarily used to supply electrical power in the magnitude of kilowatts (thousands of watts) and megawatts (millions of watts). This course covers common AC generator maintenance tasks such as replacing brushes, performing overhauls, and conducting electrical tests.	1	Intermediate
<b>AC Motor Basics</b>	Electric motors provide the mechanical energy that is needed to operate a wide variety of equipment in an industrial facility. To make sure that the motors in their plant are operating properly, operators should be familiar with the fundamentals of motor operation and the basic operating characteristics of AC motors. In this course, the trainee will learn about the basic operation of an AC motor as well as its parts and functions.	1	Intermediate
<b>AC Motor Controller Maintenance, Part 1</b>	This course introduces participants to AC motor controllers, which are devices, or groups of devices, that control the operation of alternating current (AC) motors. They can start, stop, or protect a motor; control its speed; and change its direction. By doing so, AC motor controllers make it possible to use motors more effectively in industrial operations. In most industrial facilities, electrical maintenance personnel are responsible for maintaining AC motor controllers and correcting any controller problems that arise.	1	Intermediate
<b>AC Motor Controller Maintenance, Part 2</b>	Alternating current (AC) motor controllers serve a vital function in industrial facilities: They control the operation of AC motors. Therefore, when a controller breaks down, it is essential for electrical maintenance personnel to know how to locate the cause of the controller malfunction and be able to make the necessary corrections. It is also important for electrical maintenance personnel to be able to maintain the AC motor controllers in their facilities so that they operate with maximum efficiency and a minimum number of breakdowns. This course deals specifically with troubleshooting and maintenance procedures for AC motor controllers.	1	Intermediate
<b>Access 2013: 01-Working with Databases in Access 2013</b>	Study the characteristics and components of a database, while learning the capabilities provided by Access 2013 to build and implement databases. You will also find discussions on the distinction between queries and forms, on how to update and delete records, on the process of adding records to labels, and on the different filtering options that can be used to view data. In the relational database section, you will focus on the difference between flat and relational databases, the rules that apply to building relational databases, how to identify entities and attributes as well as use database diagrams. Learn these foundational topics so that you can deepen your understanding of how to create and work with databases in Access 2013. This is the first course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 02-Creating, Modifying, and Managing Tables in Access 2013</b>	Databases can save you time and energy. They are also useful for managing large quantities of data. In this training, you will observe how to create them as you go through discussions on generating databases from a template, the Wizard, the old format, and manually. You will also spend time taking a closer look at database components, particularly tables, table relationships, and fields. In the field section, you will learn about what to do with unique values, testing a field, setting primary key fields, field sizes, field data types, setting default values, and changing data formats. Learn about how to work with each of these database elements in Access 2013. This is the second course in the Access 2013 (77-424) series.	2.25	Intermediate
<b>Access 2013: 03-Working with Forms in Access 2013</b>	Take a closer look at forms as you focus on creating, enhancing, and formatting forms. In the form organization section, you will find presentations on tab modification, the way data sources are modified, and the steps to adding subforms. Some of the highlights from the formatting section include steps on applying themes and inserting images and backgrounds, how to sort records, and an overview of the printing layouts available. The navigation form section details the steps to creating navigation forms and how to format them. Overall, this course will introduce you to forms and teach you how to modify forms using Access 2013. This is the third course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 04-Working with Queries in Access 2013</b>	Learn the basics of queries as you look at the purpose of queries, how to add fields to queries, query modifications, working with multitable queries, and types of criteria in queries. There is also sections of this training dedicated to demonstrating how queries function. In the query calculation section, you will look at calculated fields, the Expression Builder, numeric and text calculation, and crosstab queries. The last section concentrates on action queries, which reviews how to use action queries, the steps to making table queries, how to update an action query, and append it. Take time to thoroughly explore queries so that you can use them to their fullest potential through Access 2013. This is the fourth course in the Access 2013 (77-424) series.	2	Intermediate
<b>Access 2013: 05-Sharing and Protecting Your Data in Access 2013</b>	Dive into making reports with Access 2013. They are the final piece to working with an Access database. There is also a section containing different tips for taking the Microsofts Access exam. The Protection section talks about protecting, splitting, merging, and encrypting a database. In the end, you will have a better understanding of how to use Access 2013 to create, modify, and print reports, as well as protect and maintain databases. With these skills, you will be equipped to work with reports and properly maintain databases. The final section of this course provides you with tips to help you successfully pass Microsofts 77-424 exam. This is the final course in the Access 2013 (77-424) series.	2	Intermediate
<b>Accessibility and Visitation</b>	Visitation is the concept of newly constructed houses being built to allow for someone with mobility disabilities to visit the house, move around inside the house, and use the restroom. The movement was founded by Eleanor Smith. The house will likely be around for a long time, and these concepts help not only people who visit, but also people who live there and may want to age in place. This interactive online course will introduce you to the principles of Visitation as well as the benefits of designing to these principles.	1	Fundamental



## AEC Complete

Title	Description	Hours	Level
<b>Accessibility by Building Type: Multi-Use Facilities</b>	This one-hour course will address the design and construction of multi-use facilities using the requirements of the 2010 Americans with Disabilities Act (ADA) Title III Regulations Accessibility Guidelines - ADAAG, effective and mandatory for all such buildings and sites in the United States on and after the 15th of March 2012. You will experience a virtual tour of the newly renovated Texas A&M University - Memorial Student Center (MSC) in College Station, Texas by the State of Texas Registered Accessibility Specialist (RAS) of record - both exterior site and interior portions of the additions and renovations project. This presentation will discuss the myriad accessibility issues that had to be met during design and construction and will address the above and beyond selection criteria used by the APA / TGCPD Accessibility Awards Program - a joint program between the Accessibility Professionals Association and the Texas Governor's Committee on People with Disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Intermediate
<b>Accessibility by Building Type: Universal Residential Design</b>	Universal Design is a term used to describe the idea of creating buildings, products, and spaces accessible to older adults, people with disabilities, and people without disabilities. The focus is on creating an all-inclusive environment usable by everyone, regardless of age or physical ability. Today's designers are challenged by the many rules and regulations in their commercial practice including the American's with Disabilities Act (ADA) and the Fair Housing Act (FHA). The application of Universal Design in architecture and construction allows homeowners to continue to live in homes that they love as their physical needs change. This interactive online course addresses why learning universal design considerations - from the initial design concepts through the life-cycle of the home - is necessary. This course will also assist designers and those in the construction industry in providing an educated and sensitive approach when creating design solutions to meet the everyday lifestyle challenges of the disabled. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Accessible Design: Curb Ramps, Ramps, and Elevators</b>	Curb ramps, ramps, and elevators make the world an easier, more accessible place for not only people with disabilities, but everyone as a whole. Though they may be a small thing, curb ramps are one of the easiest things to use to demonstrate that accessible features benefit everyone, not just people with disabilities. A curb ramp may enable someone in a wheelchair to cross a street, but it will also help an older person who walks with a cane, or a parent with a young child in a stroller, or a perfectly healthy, able-bodied, young person with a cart or dolly stacked with groceries or boxes. Ramps and elevators provide the same level of easy access for greater changes in elevation. This interactive online course illustrates how you can include these designs into your built environment to create accessible spaces for everyone.	1	Fundamental
<b>Accessible Parking</b>	In order to have an accessible site where parking is provided, people must be able to get to the site first. This means accessible parking is a necessity. This is a common part of the accessibility codes that most design professionals and building inspectors will have to deal with in their everyday work. Parking is easy to make accessible, but also easy to get wrong. This interactive, online course will point out why this should be a top priority and how to avoid the pitfalls. Components of accessible parking, location, and how many spaces are required will also be discussed.	1	Fundamental
<b>Accessible Restrooms</b>	Everyone needs to use the restroom. To find a restroom inaccessible due to physical barriers is an indignity that can and should be avoided. This interactive, online course will cover the most common errors that could cause inaccessibility, and how to design an accessible restroom for everyone. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>Accessible Routes: Getting In, Out, and Around</b>	A single step can prevent someone who uses a wheelchair for mobility from being able to access a building. Accessible routes can include ramps, elevators, and platform lifts, in addition to pedestrian paths. This interactive online course will describe components of an accessible route. It will help architects, engineers, contractors, and building inspectors ensure that people with disabilities have access to their buildings and sites. This course will use real-world examples to demonstrate not only the what of the laws, but also the why. Photographs and diagrams can demonstrate both good and bad examples and show how much of a difference properly designed and constructed spaces make in the lives of people with disabilities. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	1	Fundamental
<b>Accessible Signage</b>	Accessible signage is one of the most commonly missed areas of accessibility because it is not well understood. Accessible signage is important to blind and low vision individuals to help them locate and identify rooms and spaces. This interactive online course aims to improve your knowledge and awareness of accessible signage issues.	1	Fundamental
<b>Active Shooter and Other Acts of Targeted Violence</b>	Active shooter or threat suspects are bent on killing as many people as quickly as possible in most cases. Knowing how to react in a targeted violence situation can increase your chances of survival. This interactive online course will teach you about various types of targeted violence. You will learn how to improve your chances of survival by preparing for targeted violence. You will also learn about the precautions for targeted violence and the indicators and traits to look out for so you'll know what to expect in various situations. Finally, you'll be trained on how to react to targeted violence by identifying roles and responsibilities and relaying communication effectively so that you can calmly interact with first responders.	1	Fundamental
<b>Active Shooter Response</b>	An active shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area. In many cases, active shooters use multiple firearms and there is often no pattern or method to their selection of victims. This course describes the best actions to take in an active shooter situation as well as the correct ways to interact with law enforcement officers.	0.25	Intermediate
<b>ADA Compliance in Business</b>	The Americans with Disabilities Act of 1990 brought with it a complex set of challenges that face employers who wish to avoid discrimination against the disabled in the workplace. This course provides a clear understanding of management's roles and responsibilities under the ADA, detailing standards set by the law. Students will learn the correct procedures for interviewing and evaluating job candidates to avoid discrimination, as well as the procedures for accommodating - and ensuring a safe, discrimination-free environment for - employees with disabilities.	1.25	Intermediate

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Title	Description	Hours	Level
<b>ADA Guidelines 2010: Building Blocks</b>	<p>The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course provides criteria for basic elements considered to be the Building Blocks of accessibility as established by the guidelines, including:</p> <ul style="list-style-type: none"> <li>Ground and floor surfaces (302)</li> <li>Changes in level (303)</li> <li>Wheelchair turning space (304)</li> <li>Clear floor space (305)</li> <li>Knee and toe clearances (306)</li> <li>Protruding objects (307)</li> <li>Reach ranges (308)</li> <li>Operable parts (309)</li> </ul>	1	Intermediate
<b>ADA Guidelines 2010: Communication Elements and Features</b>	<p>The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Chapter 7: Communication Elements and Features of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible modes of communication. In this course, you will learn about the requirements of Title II of the ADA for effective communication. Effective communication means that whatever is written or spoken must be as clear and understandable to people with disabilities as it is for people who do not have disabilities. Questions answered within this course include:</p> <ul style="list-style-type: none"> <li>What is effective communication. What are auxiliary aids and services?</li> <li>When is a state or local government required to provide auxiliary aids and services.</li> <li>Who chooses the auxiliary aid or service that will be provided?</li> </ul> <p>This course also provides criteria for basic elements within Chapter 7: Communication Elements and Features of accessibility as established by the guidelines, including:</p> <ul style="list-style-type: none"> <li>701 General</li> <li>702 Fire Alarm Systems</li> <li>703 Signs</li> <li>704 Telephones</li> <li>705 Detectable Warnings</li> <li>706 Assistive Listening Systems</li> <li>707 Automatic Teller Machines and Fare Machines</li> <li>708 Two-Way Communication Systems</li> </ul> <p>ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a></p>	1	Fundamental
<b>ADA Guidelines 2010: General Site and Building Elements</b>	<p>The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The General Site and Building Elements section of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for exterior spaces. This course provides criteria for basic elements within the General Site and Building Elements of accessibility as established by the guidelines, including:</p> <ul style="list-style-type: none"> <li>General (501)</li> <li>Parking Spaces (502)</li> <li>Passenger Loading Zones (503)</li> <li>Stairways (504)</li> <li>Handrails (505)</li> </ul>	1	Intermediate
<b>ADA Guidelines 2010: Plumbing Elements and Facilities</b>	<p>The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). Plumbing Elements and Facilities (Chapter 6) of the 2010 ADA Standards for Accessible Design focuses on ADA requirements for accessible movement within restrooms and changes the design of plumbing fixtures. This course provides criteria for basic elements within the Plumbing Elements and Facilities of accessibility as established by the guidelines, including:</p> <ul style="list-style-type: none"> <li>601 General</li> <li>602 Drinking Fountains</li> <li>603 Toilet and Bathing Rooms</li> <li>604 Water Closets and Toilet Compartments</li> <li>605 Urinals</li> <li>606 Lavatories and Sinks</li> <li>607 Bathtubs</li> <li>608 Shower Compartments</li> <li>609 Grab Bars</li> <li>610 Seats</li> <li>611 Washing Machines and Clothes Dryers</li> <li>612 Saunas and Steam Rooms</li> </ul> <p>ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a></p>	1	Intermediate

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<b>ADA Guidelines 2010: Recreational Facilities</b>	<p>The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). The Recreation Facilities section (Chapter 10) of the 2010 ADA Standards for Accessible Design focus on ADA requirements for accessibility on newly designed or newly constructed and altered amusement rides. An amusement ride is defined by the guidelines as a system that moves people through a fixed course within a defined area for the purpose of amusement. ADAAG addresses only the built environment (structures and grounds). This interactive online course provides criteria for basic elements within the Recreational Facilities of accessibility as established by the guidelines, including:</p> <ul style="list-style-type: none"> <li>1001 General</li> <li>1002 Amusement rides</li> <li>1003 Boating facilities</li> <li>1004 Fishing piers and platforms</li> <li>1005 Miniature golf courses</li> <li>1006 Golf courses</li> <li>1007 Exercise equipment</li> <li>1008 Bowling lanes</li> <li>1009 Shooting facilities</li> <li>1010 Swimming pools, wading pools, and spas</li> </ul> <p>ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a></p>	2	Intermediate
<b>ADA Guidelines 2010: Small Towns</b>	<p>People with disabilities continue to face architectural barriers that limit or make it impossible to access events or services. The American Disability Act (ADA) gives people with disabilities an equal opportunity to participate in the mainstream of public life offered to all Americans. The ADA's regulations and the ADA Standards for Accessible Design, originally published in 1991, set the standard for what makes a facility accessible. While the updated 2010 Standards retain many of the original provisions in the 1991 Standards, they do contain some significant differences. The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (2010 Guidelines) developed by the U.S. Architectural and Transportation Barriers Compliance Board (the Access Board) effectively replaces the 1991 ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). This course specifically explores ADA compliance for small towns. Small towns offer a variety of essential programs and services that are fundamental to the public and to everyday American life. Although the range of services offered by small towns varies, it is essential that people with disabilities have the opportunity to participate in the programs and services that towns offer. This course presents an overview of some basic ADA requirements and provides cost effective tips on how small towns can comply with the ADA. The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.</p>	1	Intermediate
<b>ADA Guidelines: Achievable Barrier Removal and Accessibility (B)</b>	<p>The information in this course comes from various resources. These resources include documents and illustrations from publications released by the ADA National Network, the U.S. Access Board, and the U.S. Department of Justice. This course provides practical information on how to comply with the Americans with Disabilities Act, to clarify potential misunderstandings about the requirements of the ADA, and to highlight its flexible, common sense approach to accessibility.</p>	1	Intermediate
<b>ADA Guidelines: Designing Pedestrian Facilities using Public Right of Way Accessibility Guidelines (PROWAG)</b>	<p>The United States Access Board is the entity responsible for maintaining the American with Disabilities Act (ADA) guidelines. While the ADA guidelines address certain features common to public sidewalks, such as curb ramps, further guidance is necessary to address conditions and constraints unique to public rights-of-way. The Access Board has been developing Public Right of Way Accessibility Guidelines (PROWAG) for the past few years. Once PROWAGs are adopted by the Department of Justice, they will become enforceable under Title II of the ADA. This course will provide a summary of the most recent PROWAGs that have been published by the Access Board and how they relate to the design of pedestrian facilities within public right of ways.</p>	1	Fundamental
<b>Adobe Acrobat DC Essentials</b>	<p>Create, Manipulate, and Liberate your PDF Documents with Adobe Acrobat. In this Uniquely Engaging™ course from Bigger Brains you will learn to use Adobe Acrobat Pro DC to convert documents to PDF files, search within PDF documents, edit and markup PDF documents, and convert and optimize PDF files. Taught by 25-year IT veteran Chip Reaves, Adobe Acrobat DC Essentials will help beginners and experts get more from the latest version of the Adobe Acrobat solutions.</p>	3	Fundamental
<b>Adult Learning</b>	<p>People learn in a variety of different ways. That is why it is critical to understand the basics of adult learning when training people at work. This course explains how people learn and lists specific principles of adult learning. It also covers different learning styles and the importance of active learning, explains how information is stored in and later retrieved from the brain, and gives tips for aiding that process.</p>	0.25	Intermediate
<b>Advanced Management Skills</b>	<p>In LearnSmart's Advanced Management Skills Video Training, you'll learn how to become a more confident manager. By taking this course, you will learn the qualities of a healthy, effective team and the techniques that will help you manage that team. Beyond that, you'll learn the advanced management skills of communication, leadership, and motivation -- skills that very few people in the business world truly understand.</p>	5	Intermediate
<b>Advanced Project Management: Advanced Project Risk Management</b>	<p>Project risk is based on a simple equation: Event Risk equals the Probability of an Event times the Consequences of the Event. As project managers we know this, either implicitly because we've studied and read about risk in projects or we know it from first-hand experience. We've also learned along the way that we cannot fully eliminate risk, only mitigate the risk and that there is no such thing as a risk free project or action. During this interactive online course on project risk management we will go beyond the fundamental truths of project risk and cover how decisions are made, delving into decision theory and decision making in the face of uncertainty; as well as exploring risk management through the four phases of Risk Identification, Risk Analysis, Risk Response, and Risk Mitigation and Control.</p>	2	Advanced

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<b>Advanced Project Management: Advanced Project Scheduling</b>	Without a full and complete schedule, the project manager will be unable to communicate the complete effort, in terms of cost and resources, necessary to deliver the project. Knowing scheduling techniques will better prepare you to make decisions about schedule development and give better direction to your project team about schedule performance. This interactive online course will teach you the importance of scheduling in contract fulfillment, as well as introductory concepts for scheduling contract provisions, the concepts of delays and claims, and methods for delay claim resolution. You will also learn about establishing a scheduling model, best practice principles, and the eight steps for developing a good schedule model.	1	Advanced
<b>Advanced Project Management: Converting Strategy Into Action</b>	All strategic change in an organization, any organization, takes place through projects and programs. To ensure that the strategic change results in the desired outcomes, however, takes planning, thought, and focus. In short, to get effective strategic change you need to have an effective strategic plan. Through an effective strategic plan, you are better postured to ensure that the projects and programs that are implemented create the future envisioned for your organization, be it increased profit or manufacturing of a new product. This interactive, online course is intended to change that mindset by helping you understand that to generate the outcomes any organization intends, or desires, requires direction via an actionable strategic plan. The course is intended for any engineer, project or program manager, engineering manager or executive who wants to understand strategic planning via a simple process that will replace chance and luck with specific goals, objectives, and action initiatives.	1	Advanced
<b>Advanced Project Management: Executing Complex Programs</b>	In today's fast-paced, competitive, and dynamic environment, the ability for an organization or individual to successfully execute a program is severely challenged. This is because programs are complex, wrought with uncertainty, and ripe with ambiguity. Efforts to navigate the complexity of programs often result in the program manager simply expending more of their vital time to make sense of it all, but there are only so many hours in the week and regardless how many hours you invest, the program will still be complex. In this interactive online course, you're going to be introduced to the Program Management Competency Model, which was developed to assist organizations and individuals make sense of the complexity of programs by focusing energy on the development of specific skill sets that yield the biggest return on investment. The six performance and eight personal competencies highlight areas where the development of knowledge, skills, and experience will return the greatest rewards for both organizations and individuals. The biggest reward being the capability and capacity to better execute complex programs.	1	Advanced
<b>Advanced Project Management: Integrated Project Delivery</b>	Integrated Project Delivery is a construction delivery method that leverages a number of current trends to increase productivity and the speed of project delivery. This interactive online course will teach you about the importance of IPD's foundation of relational contracts, as well as the main ingredients that include a high-level of communications and collaboration and a no-fault work environment, from project charrette through building commissioning. You will also learn about the roles that lean construction processes and building information modeling play in performing, as well as recognize that IPD has many of the traits of construction delivery systems that are compatible with green building certification systems	2	Advanced
<b>Advanced Project Management: Managing Project Teams</b>	Successful projects are not delivered through technical expertise alone. It takes the ability to manage and lead teams and people effectively. The most successful project managers know how to build and maintain an environment in which both teams and individuals are motivated to do their best work. Founded on a wide range of research and real-life experiences, this interactive online course will help you understand how to develop and sustain effective project teams. You will learn tools, techniques, and tips you can add to your toolbox of people-management skills, enabling you to improve performance for yourself, your team, and the individuals on your project team.	1	Advanced
<b>Advanced Project Management: Project Management in a Dynamic Environment</b>	This interactive, online course covers the nine principles that master project managers, and their teams, put into practice managing projects in a dynamic environment. This environment is one experienced by most, if not all, project managers. It's an environment that holds speed and uncertainty as two of its most relevant characteristics. Both of these characteristics can cause severe stress during project planning and execution, and can lead to project failure if the project manager doesn't develop the skills, knowledge, and leadership ability demanded in the dynamic environment of today's projects. Mastering these nine principles will help you develop the inward and outward orientation, the formal and informal procedures, and the high-touch and high-tech communications strategy that you will require to be an effective, master project manager on your dynamic projects.	1	Advanced
<b>Advanced Project Management: Project Performance Management</b>	To control a project and keep it on budget and schedule, you need to have a quantified sense of where the project is. How is it doing? Is it on time? Is it on budget? Are the deliverable's being delivered? Are the end users satisfied? To achieve this level of project performance assessment requires a deeper understanding of metrics and measures. During this interactive online course, you will go deeper than the Project Management Institute's Project Management Book of Knowledge® takes individuals in Earned Value Management. This course will also expand your understanding of metrics and Key Performance Indicators, which are essential tools and techniques project managers must develop to effectively conduct project performance measurement on today's complex projects.	1	Advanced
<b>Advanced Project Management: Sustainability in Project Management</b>	Confirming that sustainability concepts are designed into a project from the beginning ensures that project sponsors and owners receive the maximum value, either through reduced project costs or through reduced life cycle costs. This interactive online course will teach you the principles of sustainability and how you can use this basic knowledge to increase the value in the projects you manage. You will also learn about the effects of climate change on projects and how to properly address the risks that arise from climate change. Additionally you will learn how sustainability can be integrated into traditional project management by addressing each of PMI's five project management process groups and eleven knowledge areas.	2	Advanced
<b>Advanced Project Management: The Power of Project Leadership</b>	This course should look at project management and leadership, then go into the fundamental leadership mistakes made by project managers and how to remedy them. Throughout, actionable tips and recommendations should be provided to enhance the user's skill set in project leadership. The course is geared for active project practitioners with experience in managing projects and mid- to senior-level managers. The course will provide information that can be applied to current projects, allowing for introspection. New project managers, or those aspiring to lead projects, however can benefit from the course by learning about the skill set required by effective project leaders.	1	Advanced

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<b>Advanced Project Management: Understanding the Project, Program, and Portfolio Architecture</b>	Project and construction managers are at the leading edge of delivering benefits to an organization. But how does one's efforts fit in the bigger picture? And why do you even need to know the bigger picture? This interactive, online course will define project, program and portfolio management, as well as explore the key differences and interactions. This course will also introduce you to the concept of benefits realization management and how the project, program, and portfolio hierarchy can be used to bring strategy to life and ensure more successful projects. This course will help professionals both new to, and experienced in, project management. Whether you're new to project management, or have been practicing it for some time, understanding the hierarchy of project, program and portfolio management will help you take your skills to the next level.	1	Advanced
<b>Advanced Stormwater Treatment: Design</b>	This 3-hour interactive online course leads the student through evaluation and design of stormwater treatment systems. Stormwater management is receiving increased scrutiny because of EPA Phase II regulations. It is assumed that the student already has a working knowledge of stormwater management, either through prior experience or the RedVector.com course, Introduction to Stormwater Management. Most of the information presented is available from public reports and vendor websites. A multiple-choice quiz will be presented at the end of each section of the course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Advanced Stormwater Treatment: Nutrient Removal</b>	This 1-hour interactive online course presents the latest information on nutrient removal from stormwater. Stormwater management is receiving increased scrutiny because of EPA Phase II stormwater regulations, and nutrients such as nitrogen and phosphorus are among the chief stormwater concerns. All of the information presented is available in more detail from public and vendor reports and websites. Understanding stormwater management and nutrient removal is an essential skill for engineers, scientists, developers and regulatory authorities. A test will be presented at the end of the course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Adverse Possession: An Advanced Course</b>	Adverse possession is a legally recognized way, or method, of taking title to property by physical occupation. It is always a hostile act. Based on ancient principles of common law, adverse possession is defined by statute on a state-by-state basis. In all states, possession must run for a statutory period, and the adverse claimant is charged with the burden of proof. Boundary surveyors must be familiar with this doctrine, as retracement surveys are frequently complicated by claims of adverse possession. A survey of original property lines cannot, by itself, revive the rights to land lost in adverse possession. Understanding the elements of adverse rights-with an awareness that variations exist between state laws-is critical. The appearance of surveyors in court is often triggered by issues of adverse possession, with attorneys relying heavily on surveyors as experts in what is often a difficult legal doctrine. This 2-hour online course reviews the historic concepts of adverse possession, the statutory character of these actions, and the burden of proof against the claimant. This course examines the effect of surveys on such claims, exemptions to claims of adverse possession, and the well established elements of adverse possession. The course also discusses the doctrine of prescription and its relationship to adverse possession. Using various examples both from classic texts and the author's experiences, the course examines statutes of limitations, color of title, and a surveyor's explicit duties to clients and courts. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>AEC Success: 7 Steps for Using LinkedIn® Effectively</b>	LinkedIn® is an avenue you can use to help you build your reputation in your field and become better at marketing and business development. This interactive online course will teach you ten action steps to take to build a strong LinkedIn® profile. Additionally you will learn who you should connect with on LinkedIn® to maximize your exposure. You will also learn the do's and don'ts of maximizing your usage in LinkedIn® groups.	0.5	Fundamental
<b>AEC Success: Business Development and Sales</b>	Everyone lives by selling something. Robert Louis Stevenson. In this course our discussion is going to be about developing the seller-doer in you. We'll give you the basics of business development so you can understand the process, technical skills such as communications and networking and how to take a business strategy and creating an effective plan of action.	1	Fundamental
<b>AEC Success: Conflict Resolution in the Workplace</b>	Team projects often result in conflicts that have to be resolved between different parties. Learning to resolve a conflict is a very valuable skill that can be used in all endeavors of business and life. This interactive online course will teach you five strategies for dealing with conflicts. Additionally you will learn two core skill that are necessary to successfully resolve conflicts. You will also learn about emotional awareness and how it can help you in certain situations.	1	Fundamental
<b>AEC Success: Designing Presentation Visual Aids</b>	Whether you're presenting at a conference or at a lunch and learn, visual aids can be a powerful tool to catch and hold your audience's attention and reinforce the message you are trying to get across. This interactive online course will outline different types of visual aids and how to use them effectively. Additionally, you will be provided with strategies on how to effectively build a slide deck that will powerfully transmit your message to the audience in an engaging way. Attention spans are low in today's world, but after this session, you'll have the tools needed to hold attention with eye-catching visual aids.	0.5	Fundamental
<b>AEC Success: Effective Decision Making</b>	Do you know that making too many decisions can wear you out? How do you make decisions? Do you have a process or do you typically go with your gut? This interactive online course provides you with tools and techniques that you can understand and easily apply to any decision you have to make - at work or at home.	1	Fundamental
<b>AEC Success: Five Steps to Effective E-mail Management</b>	Poor email management can kill productivity and cause you to be stressed. Implementing a proper email system will help you be more productive, more billable, and give you more time to do deep meaningful work. This interactive online course will teach you email processing and management steps to help you simplify your email filing system. You will also learn 7 steps to writing more productive emails.	0.5	Fundamental
<b>AEC Success: How to Become a Top-Notch Industry Leader</b>	Are you a positive powerful leader? Most engineers and other technical professionals strive to become a manager and in many cases when they do, they micromanage the details of every project to no avail. This course will give you strategies for becoming an exceptional leader. One that inspires his or her team into taking action towards a common goal. In this course, we will challenge you to make an opportunistic mind shift.	1	Fundamental
<b>AEC Success: How to Communicate and Present Effectively</b>	Do you communicate effectively? Engineers and other technical professionals typically work on teams and projects that require constant communication. Your ability to communicate effectively will impact your relationships and your results, both professionally and personally. This course will give you tips to help you transform into a comfortable, confident communicator.	1	Fundamental

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<b>AEC Success: How to Create a Focused, Productive and Low Stress Career and Life</b>	Being unorganized can lead to a stressful and less productive career and life. This interactive online course will teach you how to improve time management efforts to bring more balance and focus to your career and life. You will learn three specific rules for effective time management and better work life balance. You will also learn seven things you can do to increase your ability to focus.	0.5	Fundamental
<b>AEC Success: How to Find and/or Become a Mentor</b>	A mentor is someone who can guide you toward reaching your career goals and ultimately your definition of success. This interactive online course will teach you how to find a mentor using five specific considerations. Additionally you will learn how to become a mentor and then benefits mentoring will have on your career success. You will also learn strategies for getting the most out of the mentoring relationship.	0.5	Fundamental
<b>AEC Success: Improving Organization and Productivity</b>	In this day and age, it is becoming nearly impossible to focus and be productive because people are being pulled in so many different directions. Recognizing high leverage tasks can help you become organized and productive as you prepare and plan your day. In this interactive, online course, you'll be given actionable strategies for increasing your productivity on a day-to-day basis including tips for effective email management.	0.5	Fundamental
<b>AEC Success: Networking and Relationship Building</b>	Too many engineers and technical professionals think of networking as collecting business cards - WRONG! Networking is all about building relationships. In this course you will learn the importance of networking and receive strategies that you can start to use to build strong relationships today! Not just 'business card' relationships, but ones that will yield enjoyment and opportunities for years to come.	1	Fundamental
<b>AEC Success: Obtaining the Right Credentials in Your Career</b>	Professionals of all ages are faced with career and life changing decisions every day and in order to create an extraordinary A/E/C career you must make the right decisions for you, while supporting the organization you work for and the clients you serve. This interactive online course will walk you through a goal setting process, that you can utilize to help make critical career decisions and will also serve as a credential planning process. Furthermore, at the end of this course, using the process provided you will be able to identify the right credentials for you, so you can start to pursue them and change the course of your career forever.	0.5	Fundamental
<b>AEC Success: Strategies for a Successful Interview</b>	We have all been through the interview process, either through applying for a job/promotion or chasing a project. We also often follow established templates that almost everyone uses which result in eye rolling by the interviewers. This online interactive course can help you get out of this rut so that you can develop a fresh look for your next interview in pursuit of a project. You will learn what to research before the interview, how to observe and analyze the environment of the interview location, a strategic sitting layout and how to use all of this to your advantage prior to the interview. This course will show you how to manage the pace of the interview and how to answer tough questions. Finally, you'll learn how to elegantly end the interview and which follow-up activities will help you stand out amongst the thundering herd. Learn what to do and what NOT to do to subtly manage your client interview to ensure you and your team members shine!	1	Fundamental
<b>AEC Success: Time Management and Billable Hours</b>	Unlike money or aptitude, time is the one commodity that every person on the earth has the exact same amount of each day. What is needed is a new way of thinking about managing our time. In this interactive online course we will cover multi-tasking, delegating, and back-to-back scheduling. You will get tactics and tools to make the most of your time and what's most important to you.	1	Fundamental
<b>Agile Project Management: 01 - Agile Series Overview</b>	What comes to your mind when you think Agile? You're probably thinking about the ability to move quickly and easily, and you would be right. Now apply that definition in the context of project management. An Agile project manager is someone who can move quickly, adapt to change, and make smart adjustments on the fly. This course's primary purpose is to increase your knowledge of the principles and processes involved in the Agile method of project management as organized and suggested by the Project Management Institute. We will spend a lot of time discussing what you need to know and the knowledge required or at least expected to be known by most agile practitioners. The courses in this series are loosely based on the domains of: Agile principles and mindset, Value driven delivery, Stakeholder engagement, Boosting team performance practices, Adaptive planning, Problem detection and resolution, Continuous improvement. Upon completion of this series you will be well versed in the methodologies and principles of Agile project management and effectively prepared to sit for the PMI-ACP exam from PMI.	0.25	Intermediate
<b>Agile Project Management: 02 - Traditional vs. Agile Project Management</b>	The idea of performing project management work in an agile way did not magically appear in the last couple of years. But, what is an agile project management? This course examines what it is and the difference between agile and traditional project management.	0.75	Intermediate
<b>Agile Project Management: 03 - Agile Manifesto Principles 1 - 6</b>	Since the Agile Manifesto serves as the guiding principle of the entire agile project management collective, it also holds a prominent part in the Project Management Institute-Agile Certified Practitioner exam. In this course, we will explore the first six principles of the manifesto in depth.	0.75	Intermediate
<b>Agile Project Management: 04 - Agile Manifesto Principles 7-12</b>	At the root of the modern structure of agile project management is the Agile Manifesto, and it should be used as a guide to the philosophy of the agile project management approach. This course focuses on the last six agile principles as well as the Declaration of Interdependence.	0.5	Intermediate
<b>Agile Project Management: 05 - Value Driven Project Management</b>	To select the best project to work on, you must assess what is to be gained from its efforts and at what costs. Benefits are best placed in the perspective of the customer or business value. This course covers value-driven development. In this, we discuss how to determine the amount of time and effort to spend on a project. It also discusses how to determine when to expend time and resources on any one or more features, functions, procedures, parts, and/or elements of that project over others. This course makes clear what the value is and how utilizing agile project management approaches can deliver to that value.	1.25	Intermediate
<b>Agile Project Management: 06 - Setting Vision and Prioritization in Agile Projects</b>	Agile projects are selected based on certain aspects and considerations. Prioritization and planning is where most of the effort and time is spent in agile project management. This course delves deeper into prioritization and risk management in agile project management. We expand on the prioritization of the features and functions of our selected projects, building out our products vision and business case for development, and laying the foundation for our products plan of fulfillment. Also, greater detail and care is spent on the tools, techniques, and other concepts surrounding the planning at all the various levels of an agile project.	0.75	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Agile Project Management: 07 - Scrum and Extreme Programming (XP) Methodologies</b>	This course is about the agile methods and frameworks of Scrum and Extreme Programming. These are, arguably, the two most well known of the agile project management methodologies. In this course, we cover the basics, principles, and practices of both methods.	1.5	Intermediate
<b>Agile Project Management: 08 - Other Less-Common Agile Methodologies</b>	In this course, we explore some of the lesser known agile project management approaches beyond the popular ones of scrum and extreme programming. Their lack in popularity right now does not mean they will always be lesser known. They may become the go to approach in the future if certain industries or subsets of the agile community adopt them more fully and evangelize their exalts.	1	Intermediate
<b>Agile Project Management: 09 - Planning Agile Projects</b>	Planning in agile projects differs from waterfall projects or other more traditional projects in the aspect of adapting to the needs and expectations of the stakeholders and the product development in a flexible manner. This encourages changes and course corrections as often as necessary, and makes planning essential to a projects success. This course examines how to best plan an agile project, the differences between the various levels of project planning, and useful tools to aid in the planning.	1.25	Intermediate
<b>Agile Project Management: 10 - Estimating Agile Projects</b>	Estimating the work, effort, and time activities will take during a project is a very challenging exercise. However, its also a very important and crucial piece to any project management. How estimation works in agile projects is slightly different than in traditional projects or daily operations. The circumstances and variables are more varied in agile projects than in traditional project needs. This course aims to explore those differences, the strategies at play in agile estimation, and the various tools and techniques any agile practitioner whether that be an agile project manager, agile coach, ScrumMaster, or agile development team member should be aware of.	1.25	Intermediate
<b>Agile Project Management: 11 - Implementing Agile Projects</b>	A good agile project manager should be knowledgeable about the various tools and techniques of the agile project management trade. They should also be versatile enough to know when to apply the documented tools and techniques in their literal or highly structured manners and when to bend or accommodate them to the requests of the agile team. This course is aimed for those who may be taking on the role of agile project manager, agile coach, agile practitioner, agile mentor, or ScrumMaster. We discuss the basics of each type of agile manager, their similarities and differences, how to use the tools and techniques available, and what role agile management has in an agile project.	1	Intermediate
<b>Agile Project Management: 12 - Team Formation and Creating an Agile Environment</b>	There is a lot to learn and be aware of when working with agile project teams. Agile project team formation and empowerment requires setting up self-organizing and self-empowered groups of skilled and supported individuals. This course focuses on how teams are most effectively formed, how they are supported, and how those teams can more effectively work together and be continuously successful.	1.5	Intermediate
<b>Agile Project Management: 13 - Communication in Agile Projects</b>	There are many challenges and potential pitfalls of communication throughout the duration of a project. Communication is absolutely critical to any team activity, and agile project management is a team activity. The success and failure of an agile project can certainly rest on the proper or improper use of communication. This course covers the many aspects of communication in an agile project. The general goals of this course are being aware of the various modes of communication, the importance of communication in an agile project, and how to best apply the appropriate tools and techniques surrounding communication to best support your project.	1.5	Intermediate
<b>Agile Project Management: 14 - Increasing Agile Stakeholder Engagement</b>	Project stakeholders are all those affected by the project, not just those who fund the project or those we are building the project for. The product owner is a stakeholder, but he or she is not the one using the product. A bigger set of stakeholders are the end users. Even beyond that, there are many other project stakeholders. This course covers who the stakeholders are, how to consider their needs as the project progresses, and several tools and techniques that help in incorporating the stakeholders needs and wants.	1	Intermediate
<b>Agile Project Management: 15 - Soft Skills and Servant Leadership in Agile Projects</b>	An agile project manager ensures the project and its components can run. He or she ensures that everything that is needed is taken care of and puts the agile project management framework and processes in place. In essence, a project manager leads by example. In this course, we explore how a good agile project manager utilizes soft skills and leadership in order to inspire team members, keep the lines of communication open, and deliver an excellent product.	1	Intermediate
<b>Agile Project Management: 16 - Testing and Risk Management in Agile Projects</b>	This course focuses on the process of managing potential threats and other forms of risks throughout the agile projects lifecycle. We cover how to test and validate in order to gather information to improve and adapt the processes of agile project management. We continue talking about the power of adaptive planning in agile projects and discuss how to optimize value delivery by selecting and tailoring the teams processes based on experiences and project feedback.	1	Intermediate
<b>Agile Project Management: 17 - Problem Detection, Metrics, and Resolution in Agile Projects</b>	There are always going to be problems in agile projects. Some will be major and some will be incredibly minor. Being able to detect, forecast, and address the problems especially any small problems before they become big is key to successful agile project management and practice. In this course, we concentrate on the needs and methods around the detection of problems, errors, issues, and other things deemed outside our acceptable realm of control. We also examine a few of the common tools, measurements, techniques, and other diagnostics that support the teams efforts to detect and resolve problems within the project.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Agile Project Management: 18 - Quality and Earned Value Management in Agile Projects</b>	Agile project quality is a discipline that is built in and incorporated in all that is done from considering, to planning, to executing, to testing, to delivering, and every minute in between. Quality is a mindset and a practice throughout the agile project lifecycle. In this course, we concentrate on agile project quality and the role it plays in the gains or value. As we talk about the standards and the expected levels of quality of the products, we discuss the skills needed in order to measure quality.	1.25	Intermediate
<b>Agile Project Management: 19 - Continuous Improvement for Management and Project Agility</b>	No agile project is perfect. No person on an agile team is perfect. There is always room for improvement and growth. This course is about the constant striving for improvement. In this course, we explore the various methods and concepts surrounding the need and ability to continually improve an agile project, ourselves, our teams, our culture, our organization, our agile project management, and other areas, whether directly or indirectly.	1	Intermediate
<b>Agile Project Management: 20 - PMI Code of Conduct in Agile Management</b>	The discipline of agile project management does not have a particular governing body, standardization, or a certain entity that is the gold standard for certification in this field. The Project Management Institute has made tremendous inroads in adding some formality in this regard by collecting the best practices, concepts, approaches, and terms. This final course in the Agile series discusses the PMI Code of Conduct, which is essentially a list of values that should be found within any project.	0.5	Intermediate
<b>Air Quality: U.S. Air Trends</b>	The government is using our tax dollars to require improved air quality and to report on the progress of those improvement efforts. Those reports are available to us. You can be knowledgeable about the status of our air quality currently, how it compares to the past, and the effect of climate change. This interactive course gives you the report done by the U.S. Environmental Protection Agency. You get charts, details about pollutants, and supportive activities to help you understand and retain the report information.	1	Intermediate
<b>Air-Purifying Respirators</b>	Air-purifying respirators are one of two major classes of respirators (the other being air-supplying respirators). This course explains the basics of air-purifying respirators, including the three major types: single-use disposable respirators, also called dust masks; air-purifying respirators with a flexible, elastomeric quarter-mask, half-mask, or full-mask facepiece; and powered air-purifying respirators, or PAPRs. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-purifying respirators.	0.5	Intermediate
<b>Air-Supplying Respirators</b>	Air-supplying respirators are one of two major classes of respirators (the other being air-purifying respirators). This course explains the basics of air-supplying respirators, including the three major types: self-contained breathing apparatuses, or SCBAs; supplied-air respirators (SARS), also called airline respirators; and combination respirators. Topics covered include uses, inspection, maintenance, cleaning, and storage of air-supplying respirators.	0.5	Intermediate
<b>Akin v. Godwin - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Alert Driving</b>	Understanding the importance of being an alert driver can mean the difference between life and death. Learn how to observe conditions around you, anticipate hazardous situations, and react to avoid hazards with our Alert Driving course. Our course discusses driving at safe speeds, the dangers of driving while impaired, and illustrates how to increase your reaction time by following the two-second rule. Alert driving is a fundamental element of safe, defensive driving techniques.	0.25	Intermediate
<b>Alternating Current</b>	Alternating Current is a course designed to familiarize participants with how alternating current (AC) circuits work, and how voltage and current can change depending on the load, the source, and how the load and source are connected together. After completing this course, participants should be able to determine current and voltage values for an AC sine wave; explain how resistance, inductance, and capacitance affect AC circuits; explain how to calculate power in AC circuits and how to adjust power by correctly selecting and sizing circuit components; and describe the construction, operation, and use of various types of transformers.	2	Intermediate
<b>American Chemistry Council's Responsible Care Program</b>	In this interactive online course, you will be introduced to the program requirements for the American Chemistry Council Responsible Care Program. In addition, you will evaluate the global EHS initiatives that have been affected by member companies that participate in the Responsible Care Program. Finally, the inspection and reporting requirements will be explored regarding participation in the program.	1	Intermediate
<b>American Land Surveying - A History</b>	American Land Surveying has a grand and sometimes tumultuous history. Bold personalities have been attracted to the work. George Washington, Thomas Jefferson, Daniel Boone, Abraham Lincoln, Henry David Thoreau all worked as surveyors. Theirs were often the original footsteps which surveyors for generations afterward have retraced. This interactive online course traces that history from Ancient days to today. This course also covers early surveying instruments and texts, metes and bounds descriptions, forms of monumentation, Federal and State surveyor regulations, differences between civil engineers' surveys and surveys by boundary surveyors, and an overview of land surveying university programs, state licensure and accreditation.	2	Fundamental
<b>An Effective Leader's Guide to Time Management</b>	Ever wonder how some people get more done in the same 24 hours than you do? Gain the skills to up your productivity and own your time with this effective leaders guide to time management. This course uses application exercises and a rich multi-media process to integrate effective time management skills into your daily practices. This results in increased productivity, effectiveness, and overall desired outcomes.	0.5	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>An Entrepreneur's Guide to Networking</b>	Facebook, LinkedIn, Twitter, professional associations, other departments, competitors the opportunities for networking, both social and in person, are endless. Thus it is vital to learn to be strategic about your networking efforts in order to build the best relationships and truly get the results you want. Through application exercises and a rich multimedia process, this course will teach you what you need to know and do to be a strategic and effective 'networker'.	0.5	Intermediate
<b>An Introduction to Fitwel®</b>	What is Fitwel®? Fitwel® is a new building certification standard, promoted by the CDC and the Center for Active Design, which aspires to help design and construction professionals, building operators, and occupants of buildings to create and maintain facilities which promote evidence-based practices to promote better health outcomes. Fitwel® seeks practical, economical interventions to promote health, productivity, and healthcare savings over time through its web-based scorecard with 60 benchmark criteria over 7 health impact categories: food, safety, physical activity, well-being, social equity, absenteeism, and community health. This interactive online course will help you learn how to use and implement this new standard, as well as how it is similar and different from other ratings systems like WELL®.	2	Fundamental
<b>Anatomy of Construction Defects</b>	Construction defects create unnecessary risk. Less than 15% questioned in a construction industry poll fully understood the role and significance of ICC ES Reports on reducing construction defect conditions. If you could reduce associated risks and increase safety in the built environment, wouldn't you jump at the opportunity? This interactive online course will set you on the path to do just that.	2	Intermediate
<b>Anhydrous Ammonia Awareness</b>	Anhydrous ammonia is a chemical compound composed of nitrogen and hydrogen that has been liquefied and compressed into a gas. It is used as fertilizer, in power plants, and as a refrigerant. This course describes what anhydrous ammonia is and how it is used in general industry. This course also discusses the permissible exposure limits of anhydrous ammonia, the personal protective equipment that should be worn when working with or around anhydrous ammonia, handling precautions, as well as emergency response procedures.	0.25	Intermediate
<b>Anti-Harassment Training for All Employees - California</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for the state of California. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to all workers by Jan. 1, 2020, and every two years thereafter. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	1	Intermediate
<b>Anti-Harassment Training for All Employees - Maine</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for Maine.	1	Intermediate
<b>Anti-Harassment Training for All Employees - New York City and State</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, meets the training requirements for all of New York, including New York City.	1.5	Intermediate
<b>Anti-Harassment Training for All Employees - Non-State Specific</b>	Recent news stories of the implications of workplace harassment has awakened the nation to a pervasive problem. What we have learned is that harassment comes in many forms. Through real life scenarios, this interactive course will illustrate to all staff members how to recognize inappropriate behavior such as sexual harassment, bullying, and gender discrimination as well as acceptable ways to address and report unwelcomed conduct. This training, combined with your company's policies and commitment to combat all forms of workplace harassment, will help foster an atmosphere of respect. Compliant for use in IL	1	Intermediate
<b>Anti-Harassment Training for Supervisors and Managers - California</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in California this course includes specific references to California laws regarding Sexual Harassment training. This course is designed to be compliant with California standards. California has enacted a mandatory training law (SB 1343), requiring private employers of 5 or more to provide at least two hours of training to supervisory personnel on prevention of sexual harassment. This course was designed to meet the requirements of AB 1825 as well as the mandates outlined in California AB 2053 on abusive conduct and California SB 396 on gender identity, gender expression, and sexual orientation. AB 1661 legislation requires this training to be approved by local entity counsel. For questions regarding approval for your entity, please contact your local human resources representative. The course should be taught in conjunction with a review of your entity's harassment/discrimination policy. Please contact your local human resources representative if you have any questions regarding your entity's policy.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Anti-Harassment Training for Supervisors and Managers - Connecticut</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in Connecticut this course includes specific references to Connecticut laws regarding Sexual Harassment training. This course is designed to comply with Connecticut standards.	2	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - New York City and State</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. If you are a manager in New York this course includes specific references to New York requirements regarding Sexual Harassment reporting. This course is designed to be compliant with New York standards. This course is specifically for Managers and Supervisors that are currently working or have the potential to work in New York State and New York City.	1	Fundamental
<b>Anti-Harassment Training for Supervisors and Managers - Non-State Specific</b>	Sexual harassment is a constant presence in America's workplaces. To prevent harassment, we need to understand it. For many people, sexual harassment is an emotionally-charged topic loaded with confusion and uncertainty. This interactive online course is designed to provide a comprehensive explanation of what sexual harassment is, how it can occur in the workplace, current legal positions, and how management can maintain a harassment-free workplace. Some of the topics that will be covered in this course include: behaviors that constitute sexual harassment, the different types of harassment including abusive conduct, what constitutes a hostile work environment, and how to handle complaints. This course is meant to be taken for general anti-harassment training and does not discuss the standards and/or regulations of any specific state.	1	Fundamental
<b>Applied Vibration Analysis: Analyzing Bearing Vibrations</b>	In this interactive online course you will apply the analysis process to diagnose developing bearing problems. We almost have to start with bearings for one very simple reason. Every piece of equipment we'll analyze - pumps, gearboxes, and all the rest will have at least one bearing somewhere in or near them. Diagnosing bearing problems in different types of equipment will be a fundamental part of your work as a vibration analyst.	0.5	Intermediate
<b>Applied Vibration Analysis: Analyzing Fan Vibrations</b>	For many manufacturing plants, process industries, and utilities fan maintenance is a way of life. In this interactive online course we'll apply the vibration analysis process to diagnose developing fan problems. And there are two types of fans we'll examine. First the overhung type, in which the fan element or blade assembly is mounted on the end of a rotating shaft. And second, the center hung type, in which the shaft extends through the element and is supported on both sides.	0.5	Intermediate
<b>Applied Vibration Analysis: Analyzing Gear Vibrations</b>	Analyzing vibration really means interpreting vibration, and nowhere is this point better illustrated than in the analysis of gear boxes. They are literally sealed metal boxes but, with modern equipment, an experienced vibration analyst can almost peer inside the box and evaluate the condition of internal components. That's what we'll do in this interactive online course - apply the analysis process to diagnose developing gear box problems. To help get you there we'll show you how to diagnose a gear mesh problem in a single reduction gear box, a gear mesh problem in a double reduction gear box, a bearing problem in a double reduction gear box and some other common gear problem signatures.	0.5	Fundamental
<b>Applied Vibration Analysis: Analyzing Motor Vibrations</b>	Analyzing motor vibrations should be easy enough - right? After all, the only moving part is the shaft and rotor assembly. Most component equipment: gear boxes, fans, and pumps are most often driven by electric motors. In this course we'll apply the analysis process to diagnose most developing motor problems. Our case histories will be taken from 2 types of motors: DC motors and AC induction motors.	0.5	Intermediate
<b>Applied Vibration Analysis: Analyzing Pump Vibrations</b>	It's hard to imagine an industrial facility of any size without at least one pump. In this interactive online course we'll apply the analysis process, which is basic to vibration analysis, to diagnose developing pump problems. Also, we'll learn about an additional analysis tool - Trend analysis.	0.5	Intermediate
<b>Applied Vibration Analysis: Analyzing Spectral Data</b>	Do you know the process and procedure for analyzing vibration spectral data? In this interactive online course, we present a critical phase in your applied vibration analysis training. Remember that the goal of this series of courses is for you to learn to diagnosis developing equipment problems by analyzing the vibration spectrum. In this course, you'll learn a 6-step process for analyzing spectral data. This may be the most important course in the series.	0.5	Intermediate
<b>Applied Vibration Analysis: Collecting Spectral Data</b>	The job of the vibration analyst can be broken into two primary functions, collecting spectral data and analyzing spectral data. In this interactive online course you'll learn to collect spectral data safely, accurately, and consistently. Everything begins with the data you collect, only it probably won't be just you. Any number of people might collect data, so consistent procedures and sound fundamentals are essential. To help you develop them we'll offer some basic guidance for establishing a database. We'll review some common transducer or probe designs and discuss selecting the right transducer for your equipment. We'll recommend some safety practices that should become second nature to you. We'll identify good work practices for collecting data. And we'll evaluate the amplitude of vibration when you find it.	0.5	Intermediate
<b>Applied Vibration Analysis: Introduction</b>	When you get complaints about vibration in a piece of equipment - do you know what to do? In this interactive online course, you will be introduced to the principles of machine vibration. We'll examine what machine vibration is. We'll define some common terms associated with vibration and identify the causes of vibration in different types of machinery, primarily machines with rotating components. We'll also look at some instruments used to detect vibration. In addition you will receive some guidelines to follow when collecting vibration data.	1	Intermediate
<b>Appraising Performance</b>	Appraising performance is a continuous process, one that should bring out the best in both a manager and his/her employees. When handled properly and effectively, it can encourage even inspire people to strive toward personal growth and improvement. LearnSmart's Performance Appraisal course deals with planning developing a performance plan that includes realistic, meaningful performance goals and the unique role of the manager in today's workplace, where telecommunication fosters relationships with employees you never see. Specific topics include performance goals, motivational techniques, and systematic performance assessment.	3.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Aquifer Remediation</b>	Approximately 40% of the world's drinking water is drawn from wells, and in some locations, like in the Pacific Southwest, 80% of potable water is drawn from aquifers. Groundwater is an easily accessible resource, and this accessibility is also its biggest threat. Contaminants above ground and underground can easily seep into aquifers. There are a large variety of contamination sources, both natural and man-made. Similarly, there are a wide variety of remediation techniques to properly treat contaminated aquifers. Throughout this course, engineers, architects, planners and contractors will learn about the most common contamination sources and the industry best practices used for groundwater aquifer remediation.	1	Advanced
<b>Arc Flash Safety</b>	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. OSHA requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the National Fire Protection Association (NFPA) 70E Standard for Electrical Safety in the Workplace, which is the recognized industry resource in the United States for best electrical work practices.	0.53	Intermediate
<b>Arc Flash Safety for Canada</b>	An arc flash is a release of energy that instantly superheats the air and any nearby components, causing an explosion. Its a serious hazard when working on or near energized electrical equipment. The Canadian Standards Association (CSA) requires that all employees understand the electrical hazards to which they are exposed. This course introduces the dangers of arc flash and presents common methods for preventing and protecting against those dangers, such as risk control hierarchy, safety boundaries, lockout/tagout, and PPE guidelines. Its based primarily on the CSA Z462 workplace standard for electrical safety, which is the recognized industry resource in Canada for best electrical work practices.	0.5	Intermediate
<b>Arc Welding Basics</b>	Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to melt, and upon cooling, to fuse together. This course discusses the basic components and the three major types of arc welding. This course also illustrates different joint types, proper welding techniques, common weld defects, and finally the PPE that should be worn while arc welding.	0.43	Intermediate
<b>Arc Welding Processes</b>	Arc welding is a process for joining pieces of metal. In this process, the high temperature produced by an electric arc near the surface of the metal causes the metal in the pieces to be joined to melt, and upon cooling, to fuse together. This course discusses the most common types of arc welding including shielded metal arc welding, gas metal arc welding, and gas tungsten arc welding. This course also illustrates each type and describes the variables and equipment used in each type.	0.5	Intermediate
<b>Architect and Engineer Design Coordination</b>	As with all things that require several members to work together, coordination-or lack thereof-can have a tremendous impact on the outcome. When many skillful individuals work together it is very useful to follow a methodological approach when coordination and communicating with each other. This 1-hour interactive online course will analyze project scopes, scheduling, quality control, and the permitting process, all items that will need to be coordinated before and during the design of the project. You will be armed with all the knowledge and skills you need to coordinate and communicate effectively throughout your organization. Use this course to enable a successful project, all the way from the pre-proposal to final construction.	1	Fundamental
<b>Architectural Concrete</b>	The good news about creating formidable, memorable, or simply interesting buildings is that architectural designers can choose from an almost limitless array of patterns, finishes, textures, color oxides, aggregate colors, and cements to fulfill their vision and their purpose. Once the desired combination is achieved, however, responsibility for obtaining the correct architectural product is shared by the contractor and the contracting officer, who must follow stringent guidelines. This interactive online course provides guidance for the design and construction of architectural concrete, including planning and design, forms, materials and proportions, batching and transporting, placement, curing and form removal, exposed aggregate surfaces, finishing, and quality assurance.	4	Intermediate
<b>"Are You Ready?" Checklist</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Are You Ready? Checklist human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Asbestos Awareness</b>	Dispel some of the common myths about asbestos by educating your team about Asbestos Containing Materials (ACM) and how to work safely around them. This course describes the most common types of asbestos as well as the hazards asbestos may present. It provides an overview of the history of asbestos use, exposure limits, detection, prevention, and regulation. It also covers some of the potential effects of long-term exposure including asbestosis, lung cancer, and mesothelioma.	0.5	Intermediate
<b>Asbestos Awareness - 2 Hour Training</b>	Asbestos is a group of naturally occurring silicate mineral fibers that have been used extensively in thermal insulation products, building materials, and vehicle brakes and clutches. Despite many of its desired unique properties in commercial and industrial uses, it has been determined that sustained exposure to elevated concentrations of airborne asbestos can lead to serious and potentially fatal health conditions. Some of these conditions can take 20 years or more to develop, therefore early detection and avoidance of asbestos is vital. This interactive online course describes what asbestos is and the hazards it presents.	2	Intermediate
<b>ASHRAE 100: Energy Efficiency in Existing Buildings</b>	The entire design & construction industry is focused on increasing energy, water, and resource efficiency in building designs, however, new buildings represent a very small percentage of the full building portfolio. Over 95% of buildings that will be in operation 10 years from now are already built - the key to a national and cultural improvement in energy and water use is increased efficiencies within existing buildings. This course will explore ASHRAE 100, which is aimed directly at those improvements and standards required to improve resource efficiencies within existing building stock.	2	Advanced

## AEC Complete

Title	Description	Hours	Level
<b>ASHRAE Essentials - 62.1-2016 Ventilation for Acceptable Indoor Air Quality</b>	ANSI/ASHRAE 62.1-2016 - Ventilation for Acceptable Indoor Air Quality, the ventilation standard for non-residential buildings is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application in maintaining economical and effective air cleaning solutions in buildings that will benefit human health and performance. This one-hour, essential course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners and will introduce participants to the ASHRAE standard; cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges experienced in different building types in maintaining a healthy indoor environment; present basic design, construction, and operations & maintenance concepts; and present the relationship of this standard with other current standards (e.g., ASHRAE 189.1, ASHRAE 55).	1	Fundamental
<b>ASHRAE Essentials: 55-2017 - Thermal Environmental Conditions for Human Occupancy</b>	This course is an introduction to ANSI/ASHRAE 55-2017 - Thermal Environmental Conditions for Human Occupancy, the building industry's standard for defining and quantifying relative comfort in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce learners to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Essentials: 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings</b>	This course is an introduction to ANSI/ASHRAE 90.1-2016 - Energy Standard for Buildings Except Low-Rise Residential Buildings, the building industry's standard for defining the steps that must be taken to meet and demonstrate minimum energy efficiency in the built environment. The Standard is one of many developed and maintained by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, better known as ASHRAE. The intent of this course is to introduce you to the Standard, its origins, its purpose and its application. This course is intended for engineers of building HVAC systems, architects, building code officials, HVAC equipment manufacturers and building managers and owners.	1	Fundamental
<b>ASHRAE Guideline 13-2014, Building Automation Systems</b>	Perhaps the most complex, and certainly the most dynamic, aspect of building design and construction are the automation and control systems. From pneumatic controls to dry contacts to intelligent multi-modal sensors, the industry has seen dramatic change. This course will discuss ASHRAE guideline 13-2014, which provides a standard framework from which to define and specify DDC (direct digital control) of both HVAC and energy management systems.	2	Fundamental
<b>Asphalt Pavement - Design Basics</b>	Asphalt pavement is used for many applications, including roadways, parking lots, bicycle paths and recreation facilities such as tennis courts and golf cart paths. This 2-hour online course covers some of the basic design considerations for proper structural design of pavements. The text of the course is taken from a guide prepared by the Maryland Asphalt Association. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Assessing Occupational Exposure</b>	Assessing occupational exposures is a process for managing the health risks associated with workplace exposures to chemical, physical, and biological agents. This interactive, online course will cover ways to assess and prioritize exposures into exposure control categories to focus resources on the highest risks, differentiate acceptable from unacceptable exposures, and discuss ways to control unacceptable exposures. This course will introduce comprehensive strategies to best manage risk and resources.	0.5	Intermediate
<b>Asset Condition Management: Alignment and Balancing Training</b>	Machines that are not maintained can break down overtime and cause significant production delays. Precision alignment and balancing will directly increase asset life and increase the machines' Mean Time Between Failures. This interactive online course will teach you how alignment and balancing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about the technologies used in alignment and balancing procedures. Additionally, you will be presented with sample machinery case histories addressing practical considerations for the alignment and balancing procedures.	1	Intermediate
<b>Asset Condition Management: Motor Testing</b>	Motor testing techniques are critical procedures for industrial machines and should be performed before initial machine production run startup, and/or after any machine rebuild, and/or after any maintenance routine test that indicates a degraded electrical condition. This interactive online course will teach you how motor testing fits into the overall reliability and Asset Condition Management (ACM) Program. You will learn about common testing equipment and procedures. Additionally, you will be presented sample machinery case histories addressing practical considerations for testing industrial electrical motors.	1	Intermediate
<b>Asset Condition Management: Setting Up an Oil Analysis Program</b>	Equipment rarely fails without first sending signals. The question is, are you looking for the signals? Utilizing an oil analysis program is one of the best ways to find those early indications of equipment failure. This interactive online course will teach you about the importance of instituting an oil analysis program and partnering with the right laboratory. You will also learn how to choose what equipment to sample, what tests to use and how to train your personnel.	0.5	Intermediate
<b>Asset Condition Management: Vibration Analysis Training</b>	Machines that are degrading over time emit energy in the form of changed vibration patterns. Vibration Monitoring and Analysis can detect that change prior to catastrophic failure of the machine. This interactive online course will teach you about common problems found with vibration monitoring. You will also learn where vibration fits within a reliability program. Additionally, you will be introduced to new applications and technologies used in condition monitoring.	1	Intermediate
<b>AutoCAD 2014: Part 1 - Introduction</b>	AutoCAD® is the world's leading software for producing technical drawings or computer aided design and drafting. AutoCAD® has become the global industry standard for technical and engineering drawings. This course presents a hands on introduction to the AutoCAD® 2014 program and is the first in a series of courses on the 2014 release. You will be introduced to the AutoCAD® 2014 program and take a look at its basic features. You will also get an introduction to drawing basic shapes and lines. This course includes a practical application where you will get to complete real world examples using the AutoCAD® program.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>AutoCAD 2014: Part 2 - Editing Techniques</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands-on introduction to the AutoCAD® 2014 program and is the second in a series of courses on the 2014 release. In this course, you will be exploring the AutoCAD® 2014 program in more detail and looking at layers, object properties, modifying objects, and adding text annotation to drawings. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 3 - Editing &amp; Construction</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® 2014 program and is the third in a series of courses on the 2014 release. In this course, we shall cover construction lines, auto mode, hatching, dimensioning, and setting up dimension styles. We will have a practical application where we apply all of the above to a real-life situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® 2014 software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 4 - Drawing Aids and Utilities</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents a hands on introduction to the AutoCAD® 2014 program and is the fourth in a series of courses on the 2014 release. In this course, we will look at how to create and work with groups, blocks, annotation, and utilities. We'll look at how to set up and use the coordinate systems. And then, we shall have a practical application where we apply the above to a real life problem. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 5 -Template, Layouts, and Viewports</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the fifth in a series of courses on the 2014 release. In Part 5 of our lecture series on AutoCAD® 2014 we shall cover layouts, layout templates, viewports, plotting, exporting, and at the end we shall have a practicum. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>AutoCAD 2014: Part 6 - Advanced Editing &amp; Annotation</b>	AutoCAD® is the world's leading software and the global industry standard for producing technical drawings or computer aided design and drafting. This course presents hands on introduction to the AutoCAD® program and is the sixth in a series of courses on the 2014 release. In Part 6 of our series on AutoCAD® 2014, we shall cover arrays, annotation scaling, external references, and then we'll have a practical problem where we'll apply these to a real-life engineering situation. At the start of the course, you will be able to download the project files that the instructor is referencing. It is highly recommended that you download these files so you can follow along with the instructor as he leads you through the AutoCAD® software and its features.	2	Fundamental
<b>Back Injury Prevention</b>	If you work with heavy loads or repeatedly twist to move materials from one location to another, you may be at a greater risk of back injury. Back injuries are suffered by more than one million workers every year, account for twenty percent of all workplace injuries, and cost companies billions of dollars. This course will help prevent back injuries at your workplace by raising awareness about the common causes of acute and cumulative back injuries, signs and symptoms of back injuries, and the engineering and administrative controls that can be implemented to prevent back injuries.	0.38	Intermediate
<b>Backhoe &amp; Front End Loader Safety</b>	Backhoes are one of the most common types of construction equipment found on jobsites. Backhoe loaders can dig, scrape and load material. With special attachments they can perform virtually any required task. Backhoe loaders are complicated machines and it is important your employees know and understand the equipments capabilities. This program covers the maintenance and operation of a backhoe with emphasis on safety. This program contains both an English & Spanish version on the DVD and also comes with a Leaders Guide, PowerPoint presentation, end of course quiz, attendance log, and completion certificate.	0.25	Fundamental
<b>Backing Up Safely</b>	How often do you need to back up your vehicle? If you are like most drivers, you spend less time backing up than driving forward. However, backing up is one of the more risky maneuvers you do throughout the day, especially if it is in crowded parking lots or restricted spaces. This course will identify potential hazards for backing up and best practices for avoiding those hazards.	0.25	Intermediate
<b>Baler Safety</b>	Cardboard balers are a common sight in many retail stores. There are many different types of balers that may operate in slightly different ways. However, what they all have in common are safety hazards and the need to follow safe operating procedures. This program is designed to train employees how to operate a baler safely. Topics covered also include: Basic safety rules for baler use Pre-use inspection Standard operating procedures Safely removing the baled cardboard	0.15	Fundamental
<b>Bamboo Flooring and Beyond</b>	Have you heard about bamboo? It is used for food, clothing, and to build bridges. With its inherent sustainability, it's becoming especially popular as a flooring option. Do you know why? Here's your opportunity to learn about and speak knowledgeably about bamboo. This webcast takes you from how bamboo grows and gets harvested to valuable information about its characteristics, how it compares to wood, and why its such an excellent choice for flooring. You'll get basics, processes, and the many choices that are available whether you are looking for green options or simply an attractive flooring material. This course will meet your needs.	1	Intermediate
<b>Banding Safety</b>	For many freight carriers, loads must be secured to prevent shipping damage. Proper securing is especially important for uneven and bulky loads that are placed in semi-trucks. Unsecured loads can cause the truck to be imbalanced, which could potentially cause an incident while the truck is moving or being unloaded. This course will provide an overview of banding safety, and the practices a material handler will need to remain safe when banding and un-banding loads.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Barba v. Walker - A Dave Gibson Public Lands - Related Case</b>	This 2-hour interactive online-course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for PUBLIC LANDS-RELATED parcels. It introduces many of the principals of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6 hour course titled 'Dave Gibson's All Star Public Lands-Related Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Basic Business Finance</b>	Confused By Debits, Credits, Balance Sheets, And Other Business Accounting Terms? This Is The Course For You! Learn the basic accounting and finance concepts you need to be successful in modern business.	1	Fundamental
<b>Basic Electricity Review</b>	This course introduces the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. The general topics covered in this course include the nature of electricity, basic electrical quantities and their units of measurement, electrical circuits, and electromagnetism.	1	Intermediate
<b>Basic Financials for Land Surveyors</b>	Many land surveyors are excellent at land surveying, as you would expect, but completely helpless when it comes to operating a business. Surveyors, like other professionals, should not be expected to be expert business people. However, many surveyors are engaged in private practice, or intend to be at some point in their careers, and it is vitally important to understand how to measure the success of the business enterprise. Thus, they need to know about financial statements, the measurement of business success, and the analytical tools to accomplish profitability; they are the measurements necessary to determine the health of the business and to guide managers in making changes to allow attainment of financial objectives. This 1-hour interactive online course is an introduction to the basic financial statements needed to operate a small land surveying business, and a brief overview of their use. This course includes a multiple-choice quiz at the end. This course also includes a downloadable Excel file. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Basic Rigging, Part 1</b>	The purpose of this course is to provide participants with an overview of basic rigging. Safely accomplishing any rigging operation involves selecting the proper equipment, determining if the equipment is in acceptable condition, and properly carrying out all applicable procedures. This course focuses on basic rigging components.	1	Intermediate
<b>Basic Rigging, Part 2</b>	Rigging can be described as the planned movement of a load using various types of rigging equipment. Rigging jobs can range from light lifting operations, in which simple hoisting mechanisms are used, to complex or heavy lifting procedures. This course focuses on basic rigging procedures.	1	Intermediate
<b>Basic Wind Loads ASCE 7-10</b>	If you design buildings you have to understand wind forces and how to prepare for them. One of your tools in designing for wind loads on structures, including roofs, walls, and windows, is the ASCE 7 Manual, Chapter 28, Envelope Procedure (formerly low-rise buildings in Method 2). This interactive online course gives you the 2010 updates to Chapter 28. You get information, step-by-step instructions, and examples to help you in making your calculations We'll cover how to get started as well as the calculations for wind loads on the ends and sides of a structure.	1	Intermediate
<b>Basics of Leadership: 01-Leadership Challenges</b>	Leaders in the 21st century must accommodate themselves to todays rapidly evolving marketplace. Leadership Challenges will teach you about the characteristics of 21st century organizations. You will become familiar with current trends as they apply to business, and gain a better understanding of changing employee expectations and motivations in the workplace. This is the first course in a series of six courses on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 02-Changes in Corporate Culture</b>	A companys organizational structure has a significant impact on how well a company performs and how well its employees work together to achieve common goals. In this course, you will learn the characteristics of a healthy organizational culture. You will gain insight into understanding workplace behaviors and learn how to direct cultural change. This course will provide you with ideas on how to shape healthy organizations and the insight needed to lead cultural change in your organization. Changes in Corporate Culture is course number two in a series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 03-Keeping Employees Energized</b>	Employees who are excited about being at work each day tend to be more conscientious, yield higher quality work, have more momentum, and are less likely to allow themselves to become distracted. In this course, you will learn about the right ways to energize employees. You will gain insight on how to effectively communicate with and empathize with employees. You will better understand how to build morale in the workplace and how to stimulate creativity and capitalize on employee energy. This course is part of a six-course series on 21st century leadership. This is course 3.	1	Intermediate
<b>Basics of Leadership: 04-Knowledge Management</b>	Knowledge is the most valuable asset most companies possess. Knowledge fuels innovation and represents a strong competitive advantage. Therefore, how companies manage their knowledge directly affects their productivity and capacity to compete. Knowledge Management looks at three different management styles and provides insight into how knowledge workers in the 21st century play an important role in todays workplace and how companies grow their intellectual capital. This is the fourth course in a six-course series on 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 05-Elements of Change in Business</b>	Pushing for change can result in a more competitive organization. But change does not guarantee success and involves risk and cost. However, not doing anything can be risky and costly too. Elements of Change addresses the importance of change and why its essential to speak up when you see something that can be done better or handled differently. This course will allow you to look at your organization with new perspective and contemplate how it can become more competitive and grow in the marketplace. This is the fifth course in a series of courses dedicated to taking a closer look at successful 21st century leadership.	1	Intermediate
<b>Basics of Leadership: 06-Leadership Dynamics</b>	Leadership Dynamics will introduce you to some of the common misperceptions about leadership. You will review the fundamental qualities of a great leader and learn how you can develop your own leadership style. You will learn the value of building strong relationships with bosses and co-workers, the power of influence, how to shape corporate culture, and how to build great teams. This is the final course of the Front Line Leadership series.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Basics of Soil Resources 1: Classification, Mapping and Data Bases</b>	The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations; 99.7 percent of human food comes from cropland, which is shrinking by more than 10 million hectares (almost 37,000 square miles) a year due to soil erosion. This 2-hour online course discusses soil as a complex, dynamic, biogeochemical system that is the principal substrate, vital to every life cycle of terrestrial vegetation and organisms. Soil serves as a reservoir of water and nutrients as well as a medium for the filtration and breakdown of wastes. Faced with climatic changes, increasing population and rapid decreases in the extent and quality of the soil resource base, the global community must now take stewardship of the resource most immediately linked to our survival.	2	Fundamental
<b>Basics of Soil Resources 2: Erosion, Desertification, Salinization &amp; Soil Acidification</b>	This course focuses on the topics of erosion, desertification, salinization and soil acidification. These are issues that affect all life on earth. 70% of earth's land capable of supporting agriculture has suffered erosion and soil degradation. This has a direct impact on the chemical cycles of life, the atmosphere, water and food supplies of the entire planet. The rise and fall of civilizations through history has been based on the condition of the soil. From the fertile crescent to the Egyptian Empire and the Han Empire of China, it is the soil that built the empire, and land degradation that led to the deterioration and eventual collapse of these civilizations. Soil and land resources are generated, developed and renewed within a geologic time frame, in processes that take hundreds of thousands or even millions of years. The span of human history is measured in some thousands of years. For this reason, land resources must be regarded as essentially non-renewable. It is therefore exceptionally important to adopt a proactive approach to conservation and sustainable management of these critical resources.	2	Fundamental
<b>Basics of Water Resources: Groundwater Contamination</b>	Since the 1970s there has been a disturbing discovery of hazardous wastes in ground water. Early discoveries of sites such as Love Canal in New York and the Denver Arsenal in Colorado initiated a new era in groundwater studies. Throughout the 1980s numerous studies of abandoned waste sites, spills and leaking underground storage tanks became headline news. Groundwater hydrology is now critical to understand the mechanisms and rates of transport of physical, chemical and biological contamination below the ground, and the impact of those contaminants on the ground water supply. This 2-hour interactive online course covers the fundamental sources and classifications of groundwater contamination. The course focuses on the discussion of natural and man-made sources of groundwater pollution and gives some perspective into various systems of categorization and classification. The RedVector course entitled Basics of Water Resources: Groundwater Hydrology covers the introduction to the hydrologic cycle and the basic terminology of groundwater. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Basics of Water Resources: Groundwater Hydrology</b>	This 1-hour interactive online course covers the fundamentals of water supply hydrology. From the hydrologic cycle to the nature and character of groundwater as it goes from recharge zones to discharge points, the basic concepts and terminology are introduced in a clear and easy to read form. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Basics of Water Resources: Wetland Basics</b>	Once perceived as worthless, wetlands are now known to be vital to water quality, erosion control, species diversity, biological productivity and even climate. Their form and function involves a complex interaction between geological setting, hydrology and climate. Their reaction to and interaction with human activity in a region will determine the future of humans in that region, since they ultimately play a role in water quality, flood control, pollution and climate control as well as providing food and recreational resources. This 3-hour interactive online course covers the fundamentals of wetlands. Keywords: wetland, hydrology, climate, flood control, water quality, pollution, climate control, ecology, species diversity, biological productivity, environment, environmental, hydrologic cycle, chemical cycles, swamp, bog, fen, Clean Water Act, Section 404 Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Batteries</b>	A battery is a primary component of a substation or switchyard direct current (DC) control system. The function of the control system is to supply control power to operate critical devices such as protective relays, alarms and status indicators, supervisory and communications equipment, and switchgear operating circuits. This course describes the role of the battery in the DC control system, the components of a lead-acid battery, how a battery works, battery ratings, and general battery inspection steps.	1	Intermediate
<b>Battery Acid and Spill Safety</b>	Battery acid is a corrosive substance that can be harmful to individuals if it leaks or is spilled out of an enclosed battery. Therefore, prompt cleanup of all battery acid spills is necessary to prevent injuries. This course will explain procedures that will help you identify the hazards associated with batteries, limit your exposure to those hazards, and teach you how to properly handle spills and releases.	0.75	Intermediate
<b>Battery Applications</b>	This 3-hour interactive online course is an overview of the most common chemical cell batteries in use today. It includes information about both primary and secondary battery types. Battery characteristics such as the chemical composition, electrical parameters, and physical construction are reviewed. Appropriate application issues are discussed for each battery type as well as the appropriate charging methods for rechargeable battery types. The course includes a test at the end of each scenario to measure your understanding of the material.	3	Intermediate
<b>Be Proactive! Inclusion Starts With You</b>	An inclusive work environment is created by individuals who value each other's differences - and, are proactive in stopping workplace discrimination or harassment. It's often difficult to know how to react when witnessing an individual or group of people experiencing any form of discrimination or harassment - but don't ignore it and walk away! This course will provide three ways you can be proactive about inclusion in your workplace.	0.2	Intermediate
<b>Bearings Basics</b>	Bearings are machine parts in which other parts turn or slide. Almost every piece of moving machinery in an industrial facility uses bearings. This course describes the different types of bearings, their functions, and corresponding maintenance procedures.	1	Intermediate
<b>Bed Bugs: Facts And Prevention</b>	Bed bugs have made a comeback in the US due to increased international travel. Bed bugs can crawl out of a travelers suitcases and establish themselves in hotel rooms. A Bed bug problem can be quite expensive. In fact, an outbreak could lead to serious litigation and large settlements and loss of business. Can your property afford it? This program trains your employees to spot bed bugs so they can be caught in the early stages and remediated before a major infestation occurs. This DVD contains both English and Spanish versions.	0.15	Fundamental
<b>Behavior-Based Safety</b>	Behavior-based safety, or BBS, is an approach to improving workplace safety by focusing on what workers do and why they do it, and then applying strategies to promote safe behaviors in the future. It is based on the belief that human behaviors contribute in some way to many or most accidents. BBS cannot comprise a safety program all by itself. Rather, it is a tool that can be used along with other tools to create an effective workplace safety program.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Benzene: Safe Handling &amp; Storage</b>	This course will review the information required to safely handle benzene. Benzene is a flammable organic liquid that is classed as a potential human carcinogen. Training will discuss the production and use of benzene in manufacturing processes. The applicable regulatory requirements will be reviewed. The physical and chemical properties will be covered to help ensure safe handling practices. Potential exposure mechanisms, symptoms of exposure, and the use personal protective equipment are topics for consideration. The requirement for storage, handling, and transportation of benzene will be included in the training.	1	Intermediate
<b>Best Practices for Creating Superior Land Description Plats</b>	This course will define Best Practices for Creating Superior Land Description Plats. It will first describe the intent and purpose of any plat, then briefly review historic practices, basic mapping requirements and minimal data required to record a plat throughout North America. The course will then shift from review to recommendations that will guide a surveyor step by step through the creation of exceptional maps. Recommendations will include a checklist of essential elements that exceed the usual state-required minimum mapping requirements. An important part of the course will be a discussion of the surprising benefits that arise from creating outstanding plats, which include decreasing your own liability as well as aiding surveyors who may walk in your footsteps on some future date.	1	Fundamental
<b>Better Business Writing</b>	Good business writing is imperative to achieving success, no matter what business you're in. Effective communication will help you grow more confident in your ability to express yourself clearly. This course deals with the importance of being able to express yourself clearly through the written word. It also explores the fundamentals of grammar, the importance of finding and defining your personal style, and how to improve upon it as you grow in the business world.	0.75	Intermediate
<b>Better Roadway Design - Curbs &amp; Pedestrian Control Devices</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of edge treatment/delineation of curbs, curb radii, and pedestrian control devices at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Better Roadway Design - Intersection Signalization</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subject of signalization for turning movements at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Better Roadway Design - Intersection Signing</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour online course covers the subjects of signing at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Better Roadway Design - Intersections</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of reaction times and driver performance that may not be realistic. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 3-hour interactive online course covers the subjects of intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Better Roadway Design - Lane Assignment, Signals &amp; Lighting</b>	Roadway design is commonly based on minimum AASHTO (American Association of State Highway and Transportation Officials) and state DOT (Department of Transportation) design standards. However, these design standards are based on some assumptions of driver performance that may not be realistic, particularly as our population ages. The Federal Highway Administration has published a design handbook that provides substantially different guidance than that commonly prescribed by AASHTO and state DOT's. This 2-hour interactive online course covers the subjects of devices for lane assignment on intersection approach, traffic signal performance issues and fixed lighting installations at roadway intersections in the FHWA document. The recommendations of FHWA can generally be implemented very economically. While the AASHTO and state DOT standards remain the minimum standards, the designer should recognize that they are just that - minimum standards. Designs can be improved by following the guidance in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced



## AEC Complete

Title	Description	Hours	Level
<b>Biofilters: A Natural Approach to Storm Water Pollutant Removal</b>	Bioswales and constructed wetlands are under increasing use to address pollutants in storm water runoff. However, many installations of these BMPs have failed or have not been as successful as hoped. This interactive on-line course provides a discussion of the concepts of biofilters. Most of the failures can be attributed to insufficient information being available or to bad or no expert input into the design, construction, vegetating, or maintenance of the bioswale or constructed wetland. This course is intended to provide information on the design and use of biofilters so that designers will be able to make better decisions on the design, construction, implementation, and maintenance of these Best Management Practices.	2	Intermediate
<b>Bioremediation Tactics</b>	Bioremediation refers to a set of processes which involve the use of living things to break down hazardous substances in the environment into less toxic or non-toxic substances and restore contaminated soil or water to its original unpolluted state. There are many methodologies which fall into the category of bioremediation. All involve living organisms. Some work by stimulating or enhancing the inclination of certain microorganisms to break down undesirable, polluting substances. Other methods involve the use of fungi or plants to achieve the same purpose.	0.5	Intermediate
<b>Blind Spots: Diversity and Inclusion</b>	Is your biology working against you? This course will help you understand how our minds create blind spots and subconscious bias, and teach you how to evaluate the subconscious drivers that lead to ethical breakdowns.	0.5	Fundamental
<b>Blocking and Cribbing for Heavy Equipment</b>	Blocking and cribbing is a phrase which describes a variety of procedures used to stabilize heavy equipment, or large components of heavy equipment, during maintenance. Blocking refers to any of a number of methods for securing a machine, or part of a machine, while it is being worked on. Cribbing refers to the technique of stacking a group of uniform blocks to create a temporary, but sturdy, elevated structure capable of supporting a heavy load. This course describes equipment and guidelines for successful blocking and cribbing operations.	0.35	Intermediate
<b>Bloodborne Pathogens</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.43	Intermediate
<b>Bloodborne Pathogens for Canada</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. There are a number of relatively simple actions which can be taken to drastically reduce the chance of exposure to bloodborne pathogens. Depending on the type of work being done, workplace practices and methods can be modified to minimize the chance of exposure. Proper personal protective equipment is an important component in preventing the transfer of bloodborne pathogens from an infected person to a healthy person.	0.5	Intermediate
<b>Bloodborne Pathogens for Custodians</b>	Maintenance and custodial workers regularly encounter situations where they could be exposed to a bloodborne pathogen. This video, produced especially for custodian and maintenance staff, demonstrates how custodians and maintenance workers can safely clean up spills of blood or other potentially infectious materials without risking exposure. Topics covered also include: What bloodborne pathogens are Diseases that could be transmitted Potential exposure routes How to protect yourself from exposure	0.25	Fundamental
<b>Bloodborne Pathogens for Hospitality</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In the hospitality industry, which includes hotels and motels, employees may come into contact with blood or other possibly infectious bodily fluids. This can happen when cleaning rooms, stripping beds, and handling laundry. Given the risk of exposure to bloodborne pathogens, this course will cover how workers can recognize the dangers of possible infection, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bloodborne Pathogens for Schools</b>	Bloodborne pathogens are microorganisms such as viruses or bacteria that, if present in blood, can cause disease in humans. These pathogens can be transmitted from an infected person to a healthy person by contact with infected blood or other bodily fluids. In an active school environment, younger children are going to get cuts and scrapes as they participate in physical activities. Older students are going to be involved in accidents, fighting, and even drug use. All of these activities present the risk to school staff members of exposure to blood and bloodborne pathogens. This course will cover some of the dangers to staff members posed by exposure to bloodborne pathogens, what precautions are needed to minimize the risk, and what procedures to follow if exposed to possibly infectious bodily fluids.	0.5	Intermediate
<b>Bobtailing and Jackknifing</b>	Bobtailing is sometimes necessary but a dangerous method of driving a big rig tractor without any trailing component. This program is designed to train your drivers on the challenges of bobtailing and the dangers of jackknifing. Drivers will learn how the profile, weight dynamics and engine power of the tractor can cause problems without a trailer attached.	0.25	Fundamental
<b>Boiler Fundamentals</b>	Boilers are commonly used to provide a source of steam for industrial plants. The plant personnel who operate and maintain boilers need to have a good working knowledge of the fundamental principles of boiler operation. They also have to know how to monitor and control the operation of boilers in their plant and the systems associated with the boilers. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Boilers: Combustion, Water, and Steam</b>	This course is designed to familiarize participants with some of the equipment and flow paths associated with combustion and steam production in a boiler. After completing this course, participants should be able to describe the parts and operation of typical gas burners, oil burners, and stokers. They should also be able to explain how air flow is produced in a boiler, why the proper fuel-to-air ratio must be maintained, and how air heaters improve the efficiency of boiler operation. Finally, participants should be able to explain how water circulation occurs in a boiler and describe the use of economizers and moisture separators. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Bollard Boot Camp - How to Protect Places and People From Vehicle Incursions</b>	Vehicles crash into storefronts, commercial buildings, and pedestrian areas more than 60 times every day, with as many as 500 Americans killed and more than 4000 injured. From 2016 thru 2017, more people in America and Europe were injured or killed in vehicle attacks on crowds than any other form of terrorist attack. More than \$150 million in liability claims have been paid out by property owners, property managers, business owners, architects and engineers in the United States in the last two years. In this interactive online course, we will discuss what makes bollards effective safety and protective devices. You will come away with a better understanding of ASTM test standards as well as emerging state codes. Finally, you will learn how to limit possible liability resulting from a failure to include bollards in designs	1	Intermediate
<b>Boom and Scissor Lift Safety for Canada</b>	Aerial work platforms provide a temporary workspace as an alternative to ladders or scaffolding. They can be used to perform inspection, maintenance, or repairs. This course describes basic types of aerial work platforms and how to work with them safely. It provides an overview of safety requirements, controls, preparation, work rules, hazards, and other safety precautions related to elevated platforms. This course discusses vertical towers, articulating boom platforms, and extensible boom platforms.	0.25	Intermediate
<b>Boundary Disputes Between Adjoining Land Owners: Resolutions, Practices &amp; Procedures</b>	This course will focus on boundary disputes between adjoining land owners. Such conflicts are not uncommon, and the land surveyor often plays a key role in resolving them. As a licensed professional, the surveyor is viewed as a neutral party, and able to uphold the principle that boundary surveying is a property line between two parties, and not solely the line determining property of the surveyor's client. As such, the public has the expectation that resolution will be both correct and honorable. This course will examine protocols for the professional to follow when encountering disputes between abutters.	1	Fundamental
<b>Boundary Monuments: Artificial and Natural Markers</b>	Land surveying has a rich—and sometimes quirky—history of using monuments that were particular to a given region like wood stakes, iron pipes, and wheelbarrow axles. As a surveyor, you need to know the differences between natural and artificial boundary monuments. This interactive online course gives you a brief history of boundary monuments; legal principles of permanence, visibility, and accuracy; and a discussion of the ideal monument.	2	Intermediate
<b>Box Cutter Safety</b>	Box cutters are used in every type of retail environment. Millions of cuts are made with box cutters each day and it only takes a moment of inattention to cause an injury. Regardless of the type of box cutters used, they all can cause serious injuries if not handled properly. This video program is designed to train your employees on the dangers of box cutters as well as demonstrate the steps they can take to remain safe. Topics covered also include: Safe body positioning Proper storage of the box cutter Blade disposal Safe blade changing techniques	0.1	Fundamental
<b>Brain Bites - Email Management</b>	From a Frustrating Chore to a Powerful Tool Learn How To Make Email Work For You. More than ever before people rely on email in the workplace but we dread the amount of time it takes to read through and respond to all our messages. This course will give you the skills you need to tame your email mountain and use it as the effective tool its meant to be. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce.	0.5	Fundamental
<b>Brain Bites - Empathy: The Key to Active Listening</b>	Show that you are actively listening by using empathy. You have probably heard empathy described as feeling someone's pain, but what if that is not helpful or possible? Empathy is an important skill to improve your active listening and make those around you feel heard. By the end of this course, you will be able to explain and practice empathy by noticing body language, voice, and tone. You will learn to communicate an awareness of what someone else is feeling and be a better active listener using empathy. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Let Them Know You're Listening</b>	Send the message that you are listening to understand. The truth is, it's easy to not listen. We are surrounded by distractions and the list of reasons we don't listen well is long. So we have to work on listening to make others feel heard—especially at work. By the end of this course, you will be able to describe how to become a better, more active listener through focusing your attention on the speaker and clarifying their message. You will learn to build trust and become more approachable. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Organizing Your Files</b>	How To Stop Wasting Up To Two Hours Per Day Looking For Information. On average office workers spend one to two hours per day looking for information. Having an organized, searchable file and folder structure makes everyone more efficient and this course will show you how to do it. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate todays busy workforce.	0.5	Fundamental
<b>Brain Bites - Sharing a Workspace</b>	Learn to safely share a workspace to keep you and your coworkers healthy. The spread of COVID-19 led many ofices to institute new rules and guidelines. This type of event underscores the importance of a clean environment in which employees are considerate about sharing space. By the end of this course, you will feel confident about sharing a workspace effectively to keep you and your coworkers healthy and safe. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Staying Safe Online</b>	Meet the hackers trying to break into your company, and learn how to recognize the ways they try to use you and your colleagues to steal money, data, and more. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Time Management</b>	Take back your day - learn how to reduce distractions and focus on priorities to get more done. Everyone is given the same twenty-four hours every day. How you use them is up to you, and in this mini-course we'll look at tips from some of the world's top experts in time management, including Stephen Covey, Dave Crenshaw, Peter Drucker, and Tim Ferriss. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.25	Fundamental
<b>Brain Bites - Using Windows 10</b>	Learn how to really use the tools in Windows 10 to be more productive. Windows 10 introduced many new tools, and updated others, including Cortana, Task View, Virtual Desktops, the Quick Access Screen, and more. In this mini-course we'll show you how to get around in Windows 10, and how to customize and take advantage of the major features and tools Windows 10 provides. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5 minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.75	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Brain Bites - Writing Effective Emails</b>	Send emails that are read, understood, and acted on. Let's face it, email is a fact of life. The average employee in the US receives 125 emails per day. The majority of professionals say email creates tension, confusion, and other negative consequences in their busy work days. This course will help you to be part of the solution by identifying ways to write better and fewer emails, that will also ensure your emails are read, understood, and acted on. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brain Bites: Microsoft Teams Meetings</b>	Maximize your meetings with Microsoft Teams. If someone told you you'd be comfortable collaborating and meeting virtually in less than 30 minutes, would you believe them? Believe it! Bigger Brains has a way for you to learn Teams for virtual meetings that are just as easy and collaborative as your in-person gatherings. Thanks to its features and ease of use, Microsoft Teams is quickly becoming the dominant meeting platform for businesses of all sizes. Don't be left behind! We'll take a look at the major features of Teams meetings, including its deep integration with Microsoft Outlook and collaboration tools like Microsoft Whiteboard and PowerPoint. Brain Bites micro-learning courses are information-rich and convey important topics with an engaging mix of video and animation. With 5-minute video lessons and 30-minute-or-less courses, Brain Bites are the perfect tool to educate today's busy workforce.	0.5	Fundamental
<b>Brayton Cycle Analysis</b>	The ideal cycle for the simple gas turbine is the Brayton Cycle, also called the Joule Cycle. In this 1-hour interactive online course, the open, simple Brayton Cycle used for stationary power generation is considered. The Brayton Cycle thermal efficiency is also presented (but only for the air as the working fluid) and the thermal efficiency derivation is presented with a simple mathematical approach. The Brayton Cycle is presented in the T - s diagram and its major performance trends (specific power output and power output) are plotted in figures as a function of compressor pressure ratio, gas turbine inlet temperature and working fluid mass flow rate. In this course, the student becomes familiar with the Brayton Cycle, its components, T - s diagram, operation and major performance trends. This course provides the student with background material regarding basic thermodynamic concepts and a glossary for reference material. It should be noted that this online course does not deal with capital, operational or maintenance costs.	1	Intermediate
<b>Bridge Inspection and Maintenance: Laws and Requirements</b>	Bridge Inspection has become a serious issue in the United States. Structurally deficient and/or functionally obsolete bridges constitute one fourth of the Nation's bridge inventory. The cost of road and bridge improvements is estimated to be over \$200 Billion. In this environment, bridge inspection is a very important factor in the general safety and welfare of all Americans. This 2-hour online course explains the law impacting bridge inspection as well as the general requirements of an inspector. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Broward County Ordinances Chapter 9</b>	Chapter 9 of the Broward County Ordinances essentially paraphrases some of the provisions in State of Florida statutes on construction industry laws and rules, mainly from: Chapter 489 Construction Contracting, Chapter 527 Sales of Liquefied Petroleum Gas, and Chapter 553 Building Construction Standards. Chapter 9 of the Broward County Ordinances is entitled simply Contractors. Here we find ordinances which apply to specific types of contractors working in Broward County, Florida. This chapter spells out the purpose, scope, and certification requirements as well as the potential disciplinary actions which may apply to contractors who choose to operate in violation of these ordinances. In this course we review the professions covered and the purpose of the ordinances, the requirements for obtaining certification as well as maintaining and renewing a certificate, the complaint and disciplinary system, and terms vital to Chapter 9 of the Broward County Ordinances.	1	Fundamental
<b>Browser Security Basics</b>	A large number of cyber attacks target browser activity. This course provides all staff members with an overview of browser security and ways to browse the web safely. Topics include: the types of browser threats, the basics of browser security and safe browsing practices.	0.25	Fundamental
<b>Bucket Trucks, Part 1</b>	The purpose of this course is to teach the major parts of a bucket truck, safety features commonly found on bucket trucks, and some of the pre-use inspections that can be made on a bucket truck. It is assumed that participants has no previous experience in operating bucket trucks. After completing the course, participants should practice operating the controls of a bucket truck under the supervision of experienced personnel. At the conclusion of this course, participants should be familiar with the major parts of bucket trucks. They should also be familiar with the basic types of bucket trucks, the boom controls, some of the common safety features and overrides, and some of the common pre-use inspections that can be performed on a bucket truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Bucket Trucks, Part 2</b>	The purpose of this course is to teach some basic techniques that can be used to operate a bucket truck safely and efficiently. Techniques for setting up and operating a bucket truck at three typical job sites are described. It is assumed that participants is already familiar with the basic parts of a bucket truck and understands how to use the bucket controls to operate the booms. After completing the course, participants should practice setting up and operating a bucket truck at a job site under the supervision of experienced personnel. At the conclusion of this course, participants should be able to set up and operate a bucket truck at a job site. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Building a Sustainable Future</b>	Over 7 billion people now inhabit the earth, placing unprecedented pressure on the planet's soils, waters, forests, and other natural capital. The majority of the global population lives in urban areas, where their interactions with nature, and the benefits that these interactions provide, commonly occur in small-scale sites and residential settings. Most often, these landscapes are treated as inconsequential, and their full potential to mend humanity's environmental offenses and improve our quality of life is commonly overlooked. This course illustrates the importance of creating regenerative and resilient systems that increase the provision of ecosystem services. Site sustainability is defined, and the value of education about sustainability and stewardship toward our built and natural ecosystems is discussed. The importance of instilling a love of nature in our children is examined, in addition to the monitoring and adaptive management of ecosystems so maintenance practices can be continually adjusted to improve the overall function of the site. The purpose of this course is to elevate the discussion of sustainability beyond doing less bad—attempting to merely slow down environmental degradation—to create regenerative sites that restore ecosystem function and rebuild the earth's natural capital. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Building Design and Construction Features for Fire Protection</b>	Hostile fires are responsible for 3,000 deaths and 16,000 injuries each year. Approximately 100 firefighters die in the line of duty during that same period. In addition to human injury and death, is the property loss which is estimated to be almost \$12 billion a year. This interactive online course will teach you the basic, but critical, aspects of how a building design influences the likelihood of a hostile fire and how that same design can mitigate the effects of an emergency fire incident. You will learn about basic building layout, construction components, building materials, fire ratings, occupancy considerations, emergency population management, and passive and active mitigating systems.	1	Fundamental
<b>Building for Senior Living: Building Codes, Sustainability, and Structural Systems</b>	Because the health of the aging can be precarious and their safety is paramount, senior housing and care facilities are very carefully regulated. Federal and state governments subject some new projects to codes that govern program areas and the construction of all the major building systems. In addition, most states have detailed regulations written specifically to govern certain senior housing and care building types, including nursing homes, adult day care, outpatient diagnostic and treatment facilities, and some forms of assisted living. These regulations cover everything from space and environmental standards to resident rights and staffing requirements. This course covers building codes, structural systems, and sustainable building design for senior housing and care facilities. Federal, state, and local codes and regulations will be discussed, including safety and accessibility requirements. Selection of appropriate structural system or combination of systems, and the incorporation sustainable design principles into the senior housing and care facilities will also be covered in this course. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Interior Design Elements and Considerations</b>	This course is divided into four major sections - Acoustics, Lighting Design, Interior Design, and Renovation, Restoration, and Reuse. Acoustics, of course, deals with sound. We will cover the many acoustical considerations to keep in mind when designing for everything from the public areas to the very private ones. In the Lighting Design section we'll cover the basics of light levels, lamping options, and daylighting. We'll also review guidelines for specialized spaces, as well as resident rooms in long-term care and assisted living facilities. The Interior Design chapter will discuss the design process, various trends, and guidelines for color, materials, and wayfinding concepts. For Renovation, Restoration, and Reuse, we'll explore options for rehabilitation, deconstruction, and new construction for the various types of facilities. We'll provide comprehensive guidelines, many images of examples, and tables of additional information. You'll get opportunities to apply what we're covering, and printable resources to reference in the future. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Mechanical, Plumbing, Fire-Protection, Electrical, Communications, and Low-Voltage</b>	When designing buildings and spaces for an aging population, special requirements for building systems must be taken into consideration. Building systems account for significant parts of both the construction and operating costs of senior housing and care facilities. This course will cover multiple building systems, including mechanical, plumbing, fire-protection, power distribution, communications systems, and low-voltage electrical systems, and discuss special requirements for these systems in senior housing and care facilities. The use of spaces within the building and the needs of its occupants should be carefully analyzed, and design should be focused on the typical comfort, convenience, and safety needs of older adults. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 1</b>	This is the first of two courses on programming and planning guidelines for senior living facilities. The senior living industry has expanded and diversified to address demographic change. This course provides an overview of the major issues involved in the planning, design, and development of specialized environments for this new group of aging Americans. Specifically, these two courses describe the issues associated with each of the 10 major building types within the general framework of design for aging. In Part 1, you will be introduced to all 10 building types, and we will take a detailed look at the first four, including Community Based Options, Geriatric Outpatient Clinics, Adult Day Care, and Long-Term Care. The remaining six building types will be looked at in Part 2. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: Programming and Planning Guidelines for Facilities Part 2</b>	Welcome to the second part of Building for Senior Living: Programming and Planning Guidelines for Facilities. In this course we will continue our discussion on the remaining six building types for these facilities. We will take a detailed look at the guidelines for Hospice, Assisted-Living Residence, Dementia/ Alzheimer's Care, Independent/ Residential Living Apartments, Continuing-Care Retirement Community, and Active Adult Community facilities. These guidelines are only a starting point for the project planning or programming effort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Building for Senior Living: The Future of Senior Living</b>	Since the 1980s, the senior living industry's response to a variety of trends and challenges has yielded new models for housing and care. This course summarizes some of the catalysts for that change, as well as those that will accelerate the rate at which the industry continues to evolve. At the end of this course, there is an extended discussion regarding the biggest challenge for the senior living industry: affordability. This course will discuss the following six issues that have been particularly challenging in recent years: <ol style="list-style-type: none"> <li>1. Demographics</li> <li>2. Consumer expectations</li> <li>3. Lifestyle changes</li> <li>4. Service partnerships</li> <li>5. New housing and care concepts</li> <li>6. Affordable options</li> </ol> Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Building Information Modeling (BIM) for Contractors</b>	Utilizing BIM technology has major advantages for construction that save time and money. An accurate building model benefits all members of the project team, allowing for a smoother and better planned construction process that reduces the potential for errors and conflicts. This course explains how a contractor can obtain these benefits and what changes to construction processes are desirable. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
<b>Building Information Modeling (BIM) for Owners and Facility Managers</b>	Owners and facility managers can realize significant benefits on projects by using BIM processes and tools to streamline the delivery of higher quality and better performing buildings. In this interactive course, we will discover how owners can use BIM to manage project risk, improve project quality, and deliver value to their businesses. You'll also see how facility managers can use BIM to better manage their facilities. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Building Leadership Capability</b>	As a leader you will have opportunity to coach and mentor others in both official and unofficial capacities. Knowing how to effectively coach and mentor your people is key to both their success and to preparing new leadership to step up. Through application exercises and a rich multimedia process, you will learn the skills to be an effective coach or mentor, and thus be able to build additional leadership capability in your organization.	0.5	Intermediate
<b>Building Performance: Design Through Operations</b>	How has building design changed in recent years? Have you thought about how much more energy efficient your design could be today? How about in the next 5, 10, or 15 years? In this interactive online course, we will discuss how to best implement sustainable buildings from the design phase through the operations phase by focusing on the 3 main narratives of integrated design, construction commissioning, and performance tracking. By following up with the design of your building through the performance period, your project can meet the requirements of Architecture 2030 and can become a marketing opportunity of proven performance tracked on sustainable design.	1	Intermediate
<b>Building Systems for Designers - Advanced Acoustic Design Principles</b>	Achieving good acoustics has become increasingly difficult for a variety of reasons. Some of those reasons are budgets with low construction budgets, weight of various materials, and an increase in open areas and a higher density of employees in the office. Interior designers can have a profound effect on the acoustical quality of an interior environment. In this course we will look at Sound absorption and Sound Transmission Between Spaces, examine all types of environments from offices, schools, and performance centers. We will examine how sound in one space can be reduced within that space as well as what determines how much sound that travels to an adjoining space will be heard. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Advanced
<b>Building Systems for Designers - Electrical Appliances and Communications Equipment</b>	As we all know from talking with parents and grandparents and from watching old movies and TV shows, technology at home and in the office has changed considerably. Many of the items we consider necessities in our modern world would seem like magic to our ancestors. This course will give you the evolution of our most commonly used appliances as well as current information to use in designing for today's homes and offices. We'll focus on kitchen appliances, laundry equipment, and data and communications wiring. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Electrical Systems Basics</b>	Our reliance on electricity has serious implications for environmental quality and resource conservation. Lighting consumes 25 to 30 percent of the energy used in commercial buildings. This adds heat to a building's interior and increases energy use for air conditioning. In this course we will review basic principles of system design and the various sources of power. We'll also explore the design process, system components, and end-point devices. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Fire Safety</b>	Most deaths caused by building fires occur in homes, yet the National Fire Protection Association reports that only about 23 percent of households have actually developed and practiced a home fire escape plan to ensure they could escape quickly and safely. When fires occur in high-rise buildings, great numbers of persons are required to travel vertically down stairs in order to evacuate so it is especially important to have a plan for evacuation. This course covers how building interiors are designed to prevent fires and help people escape. This is, perhaps, the most valuable information that interior designers should know about building systems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Heating and Cooling Systems</b>	The building envelope's design influences comfort in the way it transmits heat to surfaces and slowly changes air temperature. Air and surface temperatures can often be controlled by passive design techniques. Air motion and air humidity contribute to comfortable cooling. Access to outdoor air improves air quality as well as provides daylight, a view, and solar heat on cold days. In the preface to the ninth edition of Mechanical and Electrical Equipment for Buildings, the authors explain how the perspective of engineers has changed: Buildings today contribute to negative global consequences of the future, and our approach to mechanical and electrical systems must consider how best to avoid environmental impacts.... We have moved from systems that centralize all sources of heating, cooling, water, and electricity toward those that encourage more localized production and control. (Benjamin Stein et al., John Wiley & Sons, Inc., Hoboken, NJ, 2006, p. xvii). John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Indoor Air Quality</b>	As buildings become more tightly controlled environments, indoor air quality (IAQ) and its effects on our health become an increasingly critical issue. Today, there are more than 80,000 synthetic chemicals in use, most of which have not been tested individually or in combination for their effects on human health. Also, the materials used in building, furnishing, and maintaining a building potentially can contain toxins that will affect air quality. In this course, we will take a look at the issue, materials, and contaminants that can cause poor indoor air quality. We will look at the ways to counteract these issues and create a good indoor air quality through ventilation and air cleaners. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Introduction to Acoustic Design Principles</b>	Interior designers' experience the world in a strongly visual way, they are often deeply affected by messages received by their other senses as well. Perhaps the most critical of these is the sense of hearing. Sound in a well-designed space reinforces the function of the space and supports the occupants' experience. A poorly designed acoustic environment hinders both the function and the enjoyment of the space, and it can even damage the health of the user. In this course we will take a look at the effect that sound can have on the environment. In this course, we will explore the world of sound and the effect it has on building materials and the people occupying the space. We will look at the designers roles and how to deal with Interior Acoustics Design Issues. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Lighting Systems</b>	All interior design projects start with an investigation of existing conditions. The location of an interior project within an existing or newly designed building, whether at the perimeter or at its center, affects light, view, and energy demands. Interior design schools routinely offer full-semester courses on lighting design. It is not the purpose of this course to try to cover all of the facets of lighting design to the degree that a lighting course would. Instead, we will look at how the current approach to lighting developed as well as how current lighting design practices affect relationships between architects, engineers, lighting designers, and interior designers. We will also look at controls and will consider practical fixture requirements and lighting system maintenance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers - Principles of Thermal Comfort</b>	In Regenerative Design for Sustainable Development, John Tillman Lyle writes, To control the flow of energy within a building, the materials and the details of their assembly must augment the form. Five elements of a building are particularly important for their roles in the thermal regime... This course explores those five elements and how they determine thermal comfort. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Building Systems for Designers - Structural Systems</b>	Although your work as an interior designer is concerned with interior spaces, you will benefit from an understanding of the way buildings are constructed. Why they stand up or fall down, and how different building techniques affect the shaping and utilization of interior space, should be areas of interest to you. In this course we will cover three major areas: Basic Structural Principles and Elements, Structural Forms, and Horizontal Structures and Vertical Movement. We cover everything from superstructure and foundation to windows and walls to horizontal and vertical conveyance. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010. All rights reserved.	3	Fundamental
<b>Building Systems for Designers - Toilet and Bath Design</b>	In this course, we will touch upon the history of plumbing specifically related to bathrooms, which will lead to the various regulations and standards that must be met in the design and placement of toilets, urinals, bathtubs, sinks, and drinking fountains. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
<b>Building Systems for Designers - Water Supply, Distribution, and Waste Systems</b>	In this course, we will learn how water gets from its original source to our homes and offices and how it is disposed. We will also cover the various components that make it possible. Additionally, we will learn about efforts currently being made to be more water efficient. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Building Systems for Designers: The Building and Its Environment</b>	Although interior designers are primarily concerned with the conditions inside buildings, they benefit from observing a building's site, climate, and geography. Interior spaces are increasingly blended with their natural settings. Wise energy use dictates awareness of how sun, wind, and cold affect the building's interior. Interior designers today are working as part of environmentally aware design teams that blend knowledge of interior design principles with an understanding of a building's natural surroundings. This interactive online course examines the connection between a building's interior and exterior environment and the influence of external weather and site conditions on a building envelope. Sustainable design strategies will be discussed, as well as building codes and regulations. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	2	Fundamental
<b>Business Communication Fundamentals</b>	In the business world, effective communication is an essential part of getting things done specifically, getting things done right, the first time. Memos, letters, presentations and meetings are the means by which we communicate. This course deals with how to develop them what to include and what not to include for that's what dictates how well we communicate.	0.75	Intermediate
<b>Business Dining Etiquette</b>	Proper etiquette makes a statement about your character and competence as a professional. In this course we'll focus on business dining etiquette and how to present your best self when meeting with clients, colleagues, partners, or even friends. Upon completing this course you will understand proper business dining etiquette for before, during, and after the meal. In addition you will understand common place settings and proper utensils. Finally, you'll learn about proper etiquette when you are hosting a meal.	0.5	Intermediate
<b>Business Disputes: Alternative Resolutions to Litigation</b>	Design professionals - engineers, architects, surveyors and others - work with developers, clients and attorneys on a daily basis. Unfortunately, having a dispute over business issues such as fees, expenses, services and contract requirements is inevitable during the life of a business professional. This course will help you become familiar with what is known as Alternative Dispute Resolution (ADR). You will learn how to lower the hostility, clearly see the issues from both points of view, and resolve the dispute. This interactive online course provides techniques to do so as quickly and as inexpensively as possible so that you are not dragged into the court system. In addition, this course examines the leading causes of business disputes involving design professionals. It analyzes the techniques and mechanisms used to resolve disputes without litigation.	1	Advanced
<b>Business Ethics</b>	Ethics is defined as the discipline dealing with what is good and bad and with moral duty and obligation. Practicing proper business ethics can be more simply stated as doing the right thing at work. Once you become an employee of the company, you become a part of many relationships that require that you behave in a manner that benefits you, those around you, and the company. This module will cover the ethics of your behavior involving relationships within the company and your behavior involving entities outside the company.	0.5	Intermediate
<b>Business Ethics: Quick Refresh</b>	Designed as a review to supplement a comprehensive business ethics course, you'll start out reviewing the definition of ethics and an understanding of how trust functions in our social interactions. We have an expectation of how others will behave towards us and how we will behave towards them. While engaging with each other, individuals behave unethically in ways that breach shared trust. You'll also look at some of the thinking errors associated with unethical behavior. From there, you will find brief descriptions on the different rules defining business ethics. For the sake of brevity, some information has been omitted, summarized, or simplified.	0.5	Intermediate
<b>Business Execution: 01-Execution Strategies</b>	Business execution is about taking ideas and turning them into reality. But to do that, you need to adopt a culture of execution. Execution Strategies introduces you to the hallmarks of an execution culture, and teaches you how to develop one in your organization. You'll learn about the importance of accountability; how to handle change; how to align the right talent with your goals; and, once you are aligned in executing your strategy, how to stay on track until you get where you want to go.	1.5	Intermediate
<b>Business Execution: 02-Inspiring Workplace Excellence</b>	When you have the foundation for a business execution culture in place, it takes constant vigilance to keep the momentum going, keep employees energized, and make sure your key people are the right ones to maintain the culture and maximize output. Inspiring Workplace Excellence deals with the importance of keeping employees energized by keeping them empowered. When you maintain positive energy, it helps create a work environment that inspires employees.	1	Intermediate
<b>Business Execution: 03-Turning Ideas into Actions</b>	There are concrete steps you can take to create a culture that will assist, rather than impede, the execution of ideas and strategies. Turning Ideas into Actions will show you how successful organizations establish a business execution culture. In addition, you will see how to avoid wrong questions, inflated numbers, unrealistic projections, and outrageous stretch goals that set departments up for failure.	1.5	Intermediate
<b>Business Rules for Land Surveyors</b>	This 2-hour online course gives the student a strong background in fundamental principles of managing a land surveying business that are commonly not applied. These are basic rules that are more common sense than anything else, but represent 30 years of business experience by the Author. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Campus Planning - An Introduction</b>	In this interactive online course you will focus on the important role campus planning takes in forming a distinctive sense of place. You'll be exposed to the fundamentals of campus planning and the importance of planning to the social, cultural, and educational aspects of a higher learning institution. You'll learn to plan successful campuses that: Engage in long-range planning efforts Create spaces of consistent architectural distinction Foster an environment for intellectual and social interaction	1	Fundamental
<b>Capacitors, Part 1</b>	Capacitors are used to control and increase the amount of capacitance in electrical circuits. In this course, participants will learn about the principles, function, and construction of capacitors as well as how to calculate capacitance and RC time constants of circuits.	1	Intermediate
<b>Capacitors, Part 2</b>	Conditions exist in any transmission and distribution system that result in power losses in the systems and equipment that deliver power and in the systems and equipment that use power. In order to compensate for these power losses, utilities often use devices such as capacitor banks and shunt reactors. This course covers the functions of substation capacitors and reactors as well as how they can be safely cleared, maintained, and tested.	1	Intermediate
<b>Carbon Tracking/Reduction Strategies for Facility Design and Operations</b>	Carbon emissions are increasingly taking center stage at the forefront of sustainability. While concepts like net zero energy are gaining mainstream traction and help account for the design/reuse of facilities' energy utilization, they do not holistically account for their long-term operational carbon footprints. Often, these footprints represent the largest consequential greenhouse gas emissions associated with the building(s) over their useful life. This interactive online course will introduce the concept of designing for operational carbon tracking and reduction utilizing a case study project - a multi-building urban college campus in metro-Boston. This project was initiated by students and faculty of the school in 2013. This course will introduce team organization, methodology, an overview of the three Scopes, and strategies for ongoing reductions towards the goal of carbon neutrality. This course will be useful for anyone interested in single or multi-building projects where carbon tracking, reduction, and off-setting are a priority.	2	Intermediate
<b>Cell Phone Use in the Workplace</b>	Cell phones have become a standard part of everyday life. They allow us to call or text, find directions, take and share pictures, schedule our lives, deposit money, listen to music, and keep up with social media. While cell phones have many positive aspects, there is a time and place for their use. Using a cell phone improperly at your job site can pose dangers to you and your coworkers. This course will cover these dangers as well as best practices associated with cell phone use.	0.5	Intermediate
<b>Centrifugal Compressors</b>	This course is designed as a reference tool that participants can use to refresh their understanding of centrifugal compressor components and operation. This course also covers the disassembly and reassembly of a vertically split compressor and the various checks and measurements that are made to compressor components.	1	Intermediate
<b>Centrifugal Pump Components</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Centrifugal pumps convert external rotational mechanical energy into kinetic energy within a liquid. In a centrifugal pump, this is done by accelerating the liquid from the center to the outer rim of a spinning impeller within a pump casing. This course covers the terminology and function of the mechanical components that make up a typical centrifugal pump.	0.5	Intermediate
<b>Centrifugal Pump Curves and Theory</b>	A centrifugal pump is a dynamic machine that has performance characteristics which are partially determined by the environment in which it is operating. One of the best ways to display and study the capabilities of a given pump is with a graph called a pump performance curve. A pump performance curve is actually a set of curves showing a number of parameters versus flowrate. Pump curves can be combined with hydraulic requirements, or system curve, to determine the suitability of a pump for a given task.	0.5	Intermediate
<b>Centrifugal Pump Fluid Mechanics</b>	Pumps convert rotational kinetic energy, such as that supplied by an electric motor, into hydrodynamic energy, or an increased pressure in a fluid required to make it flow. In order to make a fluid flow, energy, or pressure must be supplied to overcome two fundamental obstacles to flow. One obstacle is created when the elevation of a fluid is increased. The second is presented by the need to overcome the internal resistance of a fluid to flow. This course focuses on how these basic hydraulic concepts apply to piping system evaluation and pumping requirements.	0.5	Intermediate
<b>Centrifugal Pump Operations and Maintenance</b>	Pump operations and pump maintenance are two closely interrelated topics. Poor mechanical pump maintenance will lead to a loss of hydraulic performance and what may appear to be operational problems. Operational decisions which cause the pump to operate outside of its preferred operation region can lead to physical pump damage which could be misinterpreted as a traditional maintenance issue. It is important to determine the root cause of a problem. This course will cover methods for monitoring pump hydraulic operation and methods for observing and maintaining the mechanical condition of a pump.	0.5	Intermediate
<b>Centrifugal Pump Selection and Sizing</b>	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Pumps have been developed to specifically address a wide range of applications. Selecting the correct pump for a given job can be a daunting proposition. Some pump classifications are based on their hydrodynamic characteristics, some are based on mechanical construction and some are based on compliance with industry standards. In this course, we will help you understand these different classifications and present some of the strengths and weaknesses of the different designs.	0.5	Intermediate
<b>Centrifugal Pump System Components and Design</b>	The purpose of a pump is to increase the pressure of a liquid and transfer it from one location to another. Although a pump is essential to this goal, it is only one element of a larger system that is required to accomplish liquid transfer. This course will cover some of the mechanical components such as drivers and couplings that support pump operation. It will also cover how the design of a piping system around a pump will affect pump selection and performance.	0.5	Intermediate
<b>Centrifugal Pumps</b>	Pumps are used to move liquids from one place to another by increasing the mechanical energy of the liquid. The energy can be used to raise the liquid to a higher elevation or to increase its velocity or pressure. In a centrifugal pump this is accomplished by rotating an impeller which creates centrifugal force that transfers energy to the liquid. This module focuses on pumping principles and operation guidelines for typical centrifugal pumps.	0.5	Intermediate
<b>Chainsaw Accidents - The Consequences</b>	Chainsaw accidents can be devastating and drastically affect your quality of life. In this program, we explain how chainsaw accidents can occur, and what the consequences can be. Filmed with visual scenes of injuries to employees who were involved in chainsaw accidents, this video hammers home the seriousness of what can happen when using a chainsaw, and the importance of following proper safety procedures at all times during chainsaw use. By demonstrating the many ways a chainsaw accident can occur your employees will walk away trained in how to prevent them.	0.15	Fundamental

## AEC Complete

Title	Description	Hours	Level
Chainsaw Safety	Using a chain saw is something landscape personnel in public works and many other occupations must frequently do. Because of the dangers inherent in chain saw use, it is critical that you operators be properly trained on how to use them. This comprehensive video demonstrates chain saw use by skilled operators. In it, the most important techniques to prevent injuries when using a chain saw are covered. Every chain saw operator can learn something from this easy to understand program.	0.25	Fundamental
Change Management	Change is a constant in todays world. Business organizations are continually looking to improve performance by upgrading equipment, changing the organizational structure or job roles, or implementing new processes or procedures. The success of any change depends greatly on employees embracing the change. This course discusses several skills and tools necessary for supervisors to lead successful changes.	0.5	Intermediate
Chemical Unloading Basics	All personnel involved in bulk unloading of chemicals must be properly trained in general safety awareness, equipment function and emergency shut down, hazardous chemicals, personal protection measures, and security. This course will focus on some basic procedures and safety practices for unloading bulk liquid chemicals from tank trucks and railroad tank cars. Totes and drums will also be discussed.	0.25	Intermediate
Chemicals Used in Mold Remediation	Chemicals are an effective tool for each remediation contractor. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. We will visit the terminology and the recent trends to equip you to make better decisions for your team and project.	1	Fundamental
Chlorine Dioxide Awareness	This course will cover a description of chlorine dioxide, common uses of chlorine dioxide, PPE and handling requirements, exposure and toxicity, health hazards and effects, and emergency response procedures.	0.25	Intermediate
Choosing the Best Structural Lateral Force Resisting System	The decision of the lateral force resisting system for a building should be made by the structural engineer and the architect. The decision is based on a multitude of factors including structural performance, integration with architectural systems, integration with mechanical systems, constructability, and cost. This course will investigate several common lateral force resisting systems; steel moment frames, steel braced frames, wood shear walls, concrete shear walls and compare the suitability of those systems for use in low-rise buildings. Metrics will be developed to assist in the decision making process. Use of those metrics will be explored through examples.	1	Fundamental
Clean And Safe: Restrooms	Clean restrooms are significant. But, this video isnt just about HOW to clean a restroom, its about how to do it SAFELY. What PPE is needed? How can slips and falls be prevented in damp environments? How can you work with chemicals safely? What should be done with broken glass and/or other pointed objects? All of these questions and more are answered in this video designed for both Housekeeping and Facilities personnel.	0.1	Fundamental
Clean Water Act Section 404 Permits	The Clean Water Act (CWA) protects waters of the United States (WOTUS) by prohibiting the discharge of dredged or fill materials without a Section 404 permit. This training provides general guidance for which waters are considered WOTUS, and the requirements for obtaining a Section 404 permit.	0.75	Intermediate
Clear Communication	Clear Communication is a course designed to familiarize participants with ways to improve their basic communication skills. After completing this course, participants should be able to describe effective methods for improving listening skills, describe ways to ensure that listeners receive a message as the speaker intended, and describe techniques for effectively giving and receiving feedback. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Coaching Job Skills: 01-Determining Training Or Coaching	Coaching Job Skills teaches managers, supervisors and team leaders how to successfully coach employees in their jobs. In addition, it will help widen the breadth of skill sets for all employees.	1	Intermediate
Coaching Job Skills: 02-Your Path to Training New Skills	Learn and apply the five-step process for training your team members on new skills.	1	Intermediate
Coaching Job Skills: 03-Your Path to Coaching Existing Skills	Learn and apply the five-step process for coaching your team members on existing skills.	1	Intermediate
Coaching Job Skills: 04-Mastering Training New Skills	Practice Training New Skills in a full scenario situation.	1	Intermediate
Coaching Job Skills: 05-Mastering Coaching Existing Skills	Practice Coaching Existing Skills in a full scenario situation.	1	Intermediate
Coaching Job Skills: 06-Health Check	Test your ability to apply Coaching Job Skills concepts in this skills-based scenario assessment.	1	Intermediate
Coaching with Confidence	LearnSmart's Coaching with Confidence video training course teaches the importance of communication, leadership, and a way of thinking that others feel compelled to follow. Students will learn that it's not what coaches are, but what coaches do that has the most value. Coaching with Confidence contains all the essentials that people need to be the best coaches they can be for themselves, and for their teams.	6.5	Intermediate
Coastal Engineering: Hurricanes and Nor'easters	What is the difference between a hurricane and a nor'easter? What kind of damage can they cause to your building project? Hurricanes and nor'easters can be destructive natural events creating high winds, storm surge, large waves, and causing large amounts of erosion, jeopardizing structures built along the nation's coastlines. This interactive online course will provide information about how to build to better resist the effects of these storms, what foundation types perform better, and why these storms are so damaging to the built environment. A few case studies will be included to illustrate techniques that are known to improve building performance.	2	Intermediate



# AEC Complete

Title	Description	Hours	Level
<b>Coastal Engineering: Sea Level Rise</b>	What are some causes of sea-level rise? Is it impacting all coastlines? Sea-level rise is a very real flood condition that has caught the attention of many coastal communities around the U.S. This interactive online course will provide information about the potential magnitude of this rising water, the planning required to better resist the effects of this rising water, and why sea level rise can be so damaging to the built environment. A few case studies will be included to illustrate what is being done around the country to combat this serious climate change issue.	2	Intermediate
<b>Coastal Engineering: Tsunamis</b>	What is a tsunami? Tsunamis are destructive natural events that create extremely high storm surge and large waves causing large amounts of erosion, and extensive inundation jeopardizing structures and people along the nation's coastlines where these events can occur. This interactive online course will provide information about the magnitude of tsunami loads, tsunami evacuation shelters, and important issues regarding the placement of structures on tsunami-prone coastlines. Case studies will be included to illustrate techniques that are known to improve building survival of tsunamis.	2	Intermediate
<b>Cogeneration Systems Essentials</b>	Would you know enough about cogeneration to advise a client? Systems that generate both heat and electricity, called cogeneration or combined heat and power (CHP) systems, aim to reduce costs and emissions by providing two things at once. Usable heat is produced when a cogeneration system generates power, providing efficiency gains of nearly twice that of utility power. In this interactive online course we'll discuss the simultaneous goals of providing heat and power, characteristics of turbines and engines in use, and other details such as economics and air emissions limits.	1	Fundamental
<b>Cold Stress</b>	People who are exposed to cold or wet conditions sometimes can't keep their body warm, which leads to cold stress. This course discusses the factors that increase cold stress as well as what frostbite, trench foot, and hypothermia are and how they are treated. This course also illustrates safe work practices to help with the prevention of cold stress.	0.38	Intermediate
<b>Collaborative Communication: 01-Communicating to Your Manager</b>	Learn the background key concepts to effective communication to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 02-Your Manager's Communication Style</b>	Identify the medium, frequency, and amount of detail needed to successfully communicate with your manager.	1	Intermediate
<b>Collaborative Communication: 03-Your Path to Communicating Up</b>	Learn and apply the five-step process for communicating to your boss or supervisor.	1	Intermediate
<b>Collaborative Communication: 04-Mastering Communicating Up</b>	Practice Communicating Up in a full scenario situation.	1	Intermediate
<b>Collaborative Communication: 05-Communicating Up Health Check</b>	Test your ability to apply Communicating Up concepts in this skills-based scenario assessment.	1	Intermediate
<b>Combustible Dusts</b>	It's only DUST! What's the big deal? Under the right conditions, many types of industrial dust, including coal, paper, and wood dust, can ignite and produce a devastating explosion. With our Combustible Dusts course, you'll learn to identify the hazards of combustible dust by using the Dust Fire and Explosion Pentagon. You'll get a clear understanding of dust control and prevention measures as well as dust analysis and explosion risk reduction. Our course will also help identify additional risks and prevention techniques associated with primary and secondary dust explosions.	0.25	Intermediate
<b>Combustion Analysis</b>	Today, global warming is becoming more evident and it is being said that it is primarily caused by CO2 emissions. A detailed combustion analysis can be very useful in determining different fuel and technology scenarios that would result in the reduction of current CO2 emissions. Combustion has a high degree of importance in engineering. This 1-hour interactive online course covers complete and adiabatic combustion of carbon, hydrogen, sulfur, coal, oil and gas, with no heat loss, with standard air as the oxidant at stoichiometric conditions. Six separate combustion cases are covered and basic combustion performance trends are presented	1	Intermediate
<b>Commercial &amp; Residential Mixed Use Development and Sustainability</b>	This interactive webcast focuses on the sustainable nature of mixed-use development. Flexible building use gathers multiple functions into a single structure to redefine sustainable growth in the 21st century. Originally, energy was the main focus in creating buildings that were in harmony with the environment. Although focus on energy and resource conservation remains, the focus has expanded to include the concept of flexibility and density. This course also focuses on the various environmental, economic, and social benefits of providing combined commercial and residential space including; water use reduction, energy conservation, infrastructure cost, infill development, and land preservation. In addition, this course also looks at new sustainability initiatives that look outside the building envelope for sustainable opportunities (e.g., LEED Neighborhood Development, Sustainable Sites Initiative).	2	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Commercial Building MEP Design</b>	This 1-hour interactive online course details the steps that can be taken to begin the Mechanical, Electrical and Plumbing (MEP) design of a typical commercial building. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Commercial Explosives Safety</b>	An explosion is a sudden, violent release of energy accompanied by the expansion of high-pressure gases. An explosive is any chemical compound, mixture, or device intended to create an explosion. This course discusses types of explosive materials and their UN (United Nations) hazard classifications. It reviews common explosion hazards as well as the recommended personal protective equipment. This course illustrates proper material handling, storage security, best practices for blasting operations, and explosives disposal.	0.43	Intermediate
<b>Commercial HVAC Systems Essentials</b>	When planning HVAC systems for larger types of buildings, there are special considerations to take into account, such as higher density of people, special lighting and equipment, and other conditions that all may potentially generate heat. As a result, in most commercial buildings, the air conditioning and recirculation of air in the space becomes more important than providing heat - this is somewhat dependent on the location of the building. This course will provide essential information regarding HVAC systems in the areas of commercial refrigeration, space heating, boilers and furnaces, as well as controls and interfaces. If you're involved in HVAC systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of completing this training, you will have a better understanding of these core areas of HVAC systems and will be able to successfully contribute to your company - in system design, overseeing construction/maintenance, and management.	1	Fundamental
<b>Commercial Kitchen Fire Prevention</b>	Fires are an ever-present danger in a commercial kitchen. But the danger can be controlled and contained by following sound fire prevention principles. This video outlines these principles and trains your employees that properly following them will help in preventing and containing fires in your establishment. This program covers the different types of fire suppression systems as well as how to operate and inspect them. Additionally, the importance of keeping flues and appliances grease-free is reviewed as well as other common sense tips that will help your employees remain safe. It comes with both English and Spanish on one DVD. Topics covered also include: Different types of fire suppression systems How to operate and inspect these systems The importance of keeping flues and appliances grease-free Common sense tips to help employees remain safe	0.1	Fundamental
<b>Commercial Plumbing Systems Essentials</b>	This course will provide essential information regarding Plumbing Systems in the areas of water supply systems, drainage systems, commercial plumbing fixtures, and backflow compliance. If you're involved in Plumbing systems in the areas of design, construction, maintenance, or management, this course will be a key training experience for your career. As a result of this training, you will have a better understanding of these core areas of Plumbing systems and will be able to successfully contribute to your company- in system design, overseeing construction and maintenance activities, and company management.	1	Fundamental
<b>Commercial Solar Power Systems</b>	Fossil fuels won't last forever and using them often pollutes our world. Solar energy is renewable; it's clean; it's free. You can lead the way to a future where solar energy power systems provide electricity in clean, efficient ways. In this webcast we will give you some history of solar, current ways solar energy is being used and the creative possibilities for how solar can end our dependency on non-renewable energy resources.	2	Intermediate
<b>Commercial Structural and Building Systems Essentials</b>	This course will cover essential information regarding structural and building systems, with a focus on commercial building structures and roofing systems. As a result of reviewing this course, you will gain valuable knowledge and training in these core areas of structural and building Systems. We will also review a number of case studies that will provide you with valuable insight into unique approaches with building construction that are in use today. These case studies will provide you with some interesting viewpoints that you'll find useful in the development of your own projects.	1	Fundamental
<b>Communication Skills for Supervisors</b>	Communication skills are frequently cited as the most important skills for supervisors. To be an effective supervisor, you must be able to communicate with all levels of the organization. Poor communication can have many negative consequences, such as poor performance due to lack of alignment on expectations, and conflicts between individuals. This module will cover some essential skills for communicating effectively, with a focus on communicating with your subordinates.	0.5	Intermediate
<b>Company Layoffs and Downsizing</b>	Layoffs, reduction, downsizing, rightsizing, staff cuts, managing redundancy; any way you say it, the reality is a complex process that impacts a lot of individuals and organizations worldwide. Through application exercises and a rich multimedia process, this course will increase your understanding of how to make this potentially traumatic experience as successful and positive as possible for everyone involved.	0.75	Intermediate
<b>Complete Streets - An Introduction to the Complete Streets Concept</b>	This course presents an introduction to the fundamental principles of Complete Streets. The planning and development of Complete Streets projects is presented. You will also learn about the elements of planning for Complete Streets and designing and implementing Complete Streets programs.	2	Fundamental
<b>Complete Streets - An Introduction to the Design of Complete Streets</b>	Complete streets are roads and streets designed and operated to provide safe access for all users, including motorists, bicyclists, pedestrians, and transit riders. Complete streets enable users of all ages, and all physical abilities to safely move along and cross an urban street. This course presents in detail elements of design for complete streets such as intersection design guidelines, modern roundabouts, pedestrian treatments, and bicycle lane guidelines. Each element will be described in terms of the general principles, design considerations, and recommended practice. A variety of case studies will be presented.	2	Intermediate
<b>Completing the Mold Remediation</b>	You work hard each day on the project, but it's how you finish the job that people remember. Remediation projects involve controlling the work place, consistency, follow through, and finishing. This course will show you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success.	1	Fundamental
<b>Compressed Air Systems</b>	Compressed air systems are used in a variety of industries to supply process requirements, operate pneumatic tools and equipment, and to meet instrumentation needs. This course discusses compressed air system components, safety guidelines to follow while working with and around compressed air systems, common air compressor designs, compressed air conditioning systems, and air pressure and volume measurements.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Compressed Air Systems in Industrial Plants</b>	This three-hour course discusses the application of compressed air systems in industrial plants. The course covers the different types of compressor systems used today. In addition to the compressor, the course covers the components of a compressed air system including dryers, receivers, traps, intercoolers, etc. Applications of compressed air systems are discussed and the economics of using compressed air are reviewed. This course will benefit anyone who uses, recommends, designs, or just wants to know more about the various types of compressed air systems that are used in industrial plants. There is a multiple-choice quiz consisting of thirty (30) questions at the end of the course to obtain PDH credits.	3	Intermediate
<b>Compressed Air Systems: Introduction to Performance Improvement</b>	Compressed air is used widely throughout industry and is often considered the 'fourth utility' at many facilities. Almost every industrial plant, from a small machine shop to an immense pulp and paper mill, has some type of compressed air system. In many cases, the compressed air system is so vital that the facility cannot operate without it. This 3-hour online course discusses the basics of compressed air systems including compressor types, power sources used to drive the compressor, types of system controls, compressor system accessories, and uses of compressed air. This US Department of Energy sourcebook that this course is based on is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is intended to make compressed air system users aware of the performance improvement potential, details some of the significant opportunities, and directs users to additional sources of assistance. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Compressed Gas Cylinder Safety</b>	Prepare yourself and your team to work safely with and around compressed gas cylinders. This course describes compressed gas cylinders and how they are commonly used. Use this course to raise awareness about potential hazards and learn best practices for storage, transport, installation, and use of compressed gas cylinders. Missile hazards and types of compressed gases are also discussed.	0.38	Intermediate
<b>Compressible Flow Components Analysis</b>	The ideal subsonic nozzle, diffuser and thrust analysis is presented only for the air as the working fluid. The technical performance of mentioned compressible flow components is presented with a given relationship between temperature and pressure as a function of the Mach Number. This interactive online course provides the compressible flow components T - s diagrams and their major performance trends (stagnation over static temperature and pressure ratio values) are plotted in a few figures as a function of the Mach Number. In this course, you will become familiar with the compressible flow components (nozzle, diffuser and thrust), their T - s diagrams, operation and major performance trends.	1	Intermediate
<b>Compressors: Centrifugal and Axial</b>	This course is designed to familiarize participants with basic concepts associated with the parts and operation of centrifugal and axial compressors. After completing this course, participants should be able to describe the main parts and the general operation of single-stage centrifugal compressors, multistage centrifugal compressors, and axial compressors. They should be able to describe the functions of compressor lubrication systems, seals, bearings, and common auxiliary devices.	2	Intermediate
<b>Compressors: Operation of Centrifugal and Axial Types</b>	This course is designed to familiarize participants with basic concepts associated with the startup, operation, and shutdown of centrifugal and axial compressors. After completing this course, participants should be able to describe the general functions of instrumentation and control devices used with centrifugal and axial compressors. They should be able to describe operator responsibilities associated with starting up, operating, and shutting down centrifugal and axial compressors.	2	Intermediate
<b>Compressors: Positive Displacement</b>	This course is designed to familiarize participants with basic concepts associated with the operation of positive displacement compressors. After completing this course, participants should be able to identify the main parts and describe the general operation of various types of reciprocating compressors and rotary compressors. They should also be able to describe operator responsibilities associated with starting up, operating, and shutting down compressors.	2	Intermediate
<b>Concrete 1: Evaluation and Causes of Damage</b>	When taking on a concrete repair project, the first step is an important one - conducting a thorough evaluation. This 1-hour interactive online course begins with techniques for surveying the condition of the concrete, and reviews design and construction documentation, operation and maintenance records, instrumentation data, visual examination, methods of nondestructive testing and laboratory specimen analysis. The second part of the course identifies basic causes of deterioration, and covers typical symptoms, and recommendations for preventing further damage. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 2: Repair Planning and Preparation</b>	The success or failure of a concrete repair project is dependent on many things, including how well you plan and prepare for the project. This 1-hour interactive online course discusses factors that should be considered before selecting a concrete repair method, as well as steps that should be taken to prepare the site before the actual repair begins. The first section of the course discusses the properties of repair materials and the concrete substrate, along with a review of important factors at the repair site itself. The second section discusses removal of concrete, and preparation of concrete surfaces for further work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete 3: Methods, Materials, and Maintenance</b>	When a concrete structure fails, it requires repair. However, if not done correctly, the repair can also fail. This 2-hour interactive online course explains various methods and materials for the repair and maintenance of concrete structures. The first portion of this course describes materials and methods that are available for repair or rehabilitation of concrete structures, including their applications, limitations, and procedure. The second section of the course describes materials and procedures appropriate for cleaning and protecting concrete surfaces. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Concrete Additives: Water-Repellency &amp; Efflorescence Control in Masonry</b>	About 90% of the surface area of a masonry wall consists of concrete masonry units, with mortar joints making up the remaining. Both concrete and mortar are porous materials and, hence, can permit the passage of water through them. Therefore, a water-repellent masonry system should prevent the entry of water through both the concrete masonry units and the mortar joints. This 2-hour interactive online course provides the details of achieving water-repellency and efflorescence control in masonry construction. While the focus is on single-wythe masonry walls, the admixture technologies presented are applicable to other manufactured concrete products such as pavers and roof tiles.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Concrete Fundamentals: An Introduction</b>	Are your customers or clients using words like slump, water-cement ratio, cement content, and compressive strength? Do you understand admixtures and their functions? How about reading and understanding a mix design? Do you know how to place and finish concrete? This 2-hour online course introduces the student to the basic fundamentals of concrete. This course includes a multiple-choice quiz at the end.	2	Fundamental
<b>Concrete Pavement Rehabilitation - Partial Depth Repair</b>	This 1-hour interactive online course recommends procedures for selecting, designing, and construction of partial depth repair of Portland cement concrete pavements. Partial depth repair is a concrete pavement restoration technique that corrects localized distress such as spalls, scaling, and popouts in concrete pavements. Partial-depth repair improves the rideability of jointed concrete pavement. Partial-depth repair can be used as a stand-alone rehabilitation technique. However, the Federal Highway Administration recommends its use as part of a comprehensive Concrete Pavement Rehabilitation (CPR) program. Information regarding cost and performance is also included in this course. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Concrete Pavement: Glass Fiber Reinforced Polymers</b>	While we're driving on them everyday, the roadways are experiencing stress. When force is applied to concrete pavement it places a certain level of stress on the concrete. It cracks, wears away, and requires costly repairs. Steel-reinforced concrete pavement (CRCP) has been used since 1921 - it's time for a better way. This 1-hour interactive online course gives you the information and the methods to improve the strength of concrete pavements using Glass Fiber Reinforced Polymer rebar. You will see why concrete fails and learn a new way to prevent it. You'll be introduced to fiber reinforced polymers. With these formulas and designs you will build longer lasting, more durable roads.	1	Fundamental
<b>Concrete Standards and Requirements</b>	This course is a review of the Specification for Ready Mixed Concrete, ASTM C94, and discusses the aspects of ordering concrete, production, delivery and testing. It covers the responsibilities of the purchaser and the manufacturer of ready mixed concrete. The second part of the course covers the Building Code requirements for concrete materials (ACI 318) and covers specifications for concrete as addressed in ACI 301, Specification for Structural Concrete. The presentation covers strength and durability requirements for concrete as addressed in ACI 318 and ACI 301.	2	Intermediate
<b>Concrete: Self-Consolidating (SCC)</b>	Self-Consolidating Concrete (SCC), also called self-compacting concrete, is a revolution in the field of concrete technology. SCC is a very fluid, high strength concrete that flows like water, compacts with little or no vibration, does not segregate, and is self-leveling. Products made with SCC have an excellent finish, and are virtually free of bug holes or honeycombing. Introduced to the concrete industry by the Japanese in the late 1980s, it is just now coming into its own in North America. This 1-hour interactive online course introduces the student to this new concrete product. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Condensate Recovery and Steam Traps</b>	Whenever steam condenses in a process, it creates hot liquid condensate. It is the role of steam traps to remove condensate from steam lines and process equipment with a minimum loss of live steam. The condensate has economic value, so it is typically collected and reused. This module discusses the collection and re-use of condensate in a steam generation system. Three major classifications of steam traps are discussed, including their principles of operation, and their strengths and weaknesses.	0.5	Intermediate
<b>Conductors</b>	Running cables and conductors is an integral part of electrical maintenance. The topics covered in this course include how cables and conductors are classified, the factors that must be considered in selecting a conductor or cable for a particular application, and procedures for installing, splicing and terminating cables and conductors used in low-voltage applications.	1	Intermediate
<b>Confined Space Entry - Permit Required</b>	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. There are two types of confined spaces: Non-permit Required Confined Spaces and Permit-required Confined Spaces. This course will describe the dangers, best practices, and permit requirements necessary when working in a permit-required confined space.	0.67	Intermediate
<b>Confined Space Entry Awareness</b>	A confined space is defined as a work area which has all of the following characteristics: sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. This course will provide general awareness on confined spaces, differentiate between a permit-required and non-permit required confined space, and describe the job roles and responsibilities involved in confined space entry.	0.5	Intermediate
<b>Confined Spaces for Canada</b>	A confined space is defined as a work area which has sufficient space for a person to fit within and perform work, limited means of entry and exit, and a design that was not intended for continuous worker occupancy. Working in a confined space can present hazardous atmospheres and physical dangers to employees. This course will describe the dangers, best practices, and permit requirements necessary when working in a confined space.	0.5	Intermediate
<b>Confined Spaces in Construction</b>	This course will define confined spaces and discuss hazards associated with confined space entry. You will learn about emergency procedures associated with confined space entries so you can understand the roles and responsibilities of all involved. This course will provide imagery of various entry points and will identify abnormal behavior and inconsistencies as well as show the proper techniques for monitoring confined spaces.	1	Fundamental
<b>Conflict Management</b>	When people work together, there will inevitably be disagreements. Some of these disagreements are minor, but some can turn into major conflicts. If conflicts are not resolved, they can lead to long-term tension and unhappiness among employees. This course illustrates how to resolve conflicts using the SLOW method, reasons for different points of view, and tips for face-to-face communication. Following the ideas in this course can help your team use conflict situations as an opportunity to solve work or personal problems, and therefore become more productive and unified.	0.25	Intermediate
<b>Conflict Resolution</b>	Dealing with conflict in the workplace can be difficult. Seeing a person with whom you have issues every day can be challenging and distracting. Resolving conflicts has a major positive effect on the work environment, making it happier and more productive. Having employees with this conflict resolving quality is an important part of creating a productive workplace. This conflict resolution training course highlights the important aspects of resolving conflicts in the workplace. The course offers a myriad of conflict resolution skills and strategies that will help employees better deal with disputes in the workplace.	0.7	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Conflicting and Non-Existent Accessibility Standards</b>	What do you do when you have conflicting accessibility standards? What about when there are no standards? How do you make sure your building or facility is compliant? This interactive online course will cover these scenarios and help you make sure that you are designing and building for accessibility.	1	Fundamental
<b>Constructed Wetlands - Free Water Surface Wetlands</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a free water surface constructed wetland. This 3-hour online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a free water surface wetland, and includes several design examples. Construction issues unique to constructed wetlands are also discussed. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Constructed Wetlands - Introduction &amp; Basic Concepts</b>	Constructed wetlands can be used as artificial wastewater treatment systems. This 2-hour interactive online course provides an introduction into constructed wetlands, their history, common misconceptions and some guidance on when to use constructed wetlands. Also, the basics of constructed wetlands, including ecology, botany, and fauna of constructed wetlands will be discussed. This course includes sections on ecological concerns, human health concerns, on-site applications, and an extensive list of frequently asked questions. This course is based on guidance documents published by the Environmental Protection Agency and provide general information for non-technical individuals such as decision makers and stakeholders, along with design engineers. This course includes a multiple-choice test at the end of each section. This course includes downloadable pdf files. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Constructed Wetlands - Pollutant Removal Mechanisms</b>	Constructed wetlands can be used as an artificial wastewater treatment system. This 2-hour interactive online course covers the details of how suspended solids, organic matter, nitrogen, phosphorus, pathogens and other contaminants are separated and transformed in constructed wetlands. These processes are generally different between constructed wetlands and standard wastewater treatment systems. This course also includes a discussion on modeling performance of constructed wetlands and guidance on models that should be used. Additional RedVector.com courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. There is a test and the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Constructed Wetlands - Vegetated Submerged Beds</b>	Constructed wetlands can be used as artificial wastewater treatment systems. There are many design factors which affect the effluent quality from a Vegetated Submerged Bed constructed wetland. This 2-hour interactive online course covers the consideration of some of these factors that can significantly reduce the effluent variation. It also provides a brief summary of expected wetland treatment performance, describes issues that are important in the design and layout of a Vegetated Submerged Bed wetland, and includes a design example. Additional Red Vector courses are available on other topics related to constructed wetlands. This course is based on guidance documents published by the Environmental Protection Agency. This course includes a multiple-choice quiz after each section to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Construction Administration: MEP Commercial Buildings</b>	This 1-hour interactive online course provides the commercial building professional with guidelines for administering construction activities in the MEP (mechanical, electrical, plumbing) discipline area. Many aspects of construction administration are reviewed to provide information on the roles and responsibilities involved with this position. This course reviews the steps of MEP design for a commercial building that construction administrators are involved in as well as explaining their role in performing MEP building surveys. It provides sources of information, design parameters and discusses requirements of various local jurisdictions in the review of MEP documents for the issuance of building permits. This course contains a lot of the same information as in the course titled 'Performing MEP Commercial Building Surveys', and it is not recommended that these courses be taken together. This course varies because it focuses on the role of the Construction Administrator. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Construction Arbitration: A Brief Overview - Beginner</b>	This 1-hour interactive online course provides a brief overview of the arbitration process for the construction professional. Arbitration is often used to resolve disputes arising from the construction process, both during and after contract performance. If you are a prime contractor, subcontractor, architect, engineer, construction manager, owner's representative, surety, insurance company, or otherwise involved in the construction industry, it is highly likely that you will be a party to one or more arbitration proceedings during your career. This course will provide basic information to the construction professional allowing him or her to understand the arbitration process. There will be a multiple-choice quiz included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Construction Claims: Changed Work</b>	This 2-hour online interactive course provides a basic understanding of types of changes in work—directed or constructive change—and changed conditions. It provides an in-depth examination of cumulative impact, emphasizing how to identify types of change-related impacts, that includes a detailed discussion of the Leonard Study. In addition, it discusses how to address cumulative impact and assess allowance for recovery. Summaries of actual court cases are incorporated into the course to illustrate how changed work claims are determined. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Construction Cost Estimating: Resources and Processes</b>	Being able to accurately estimate (within acceptable ranges) the cost of construction of any project, at any given stage in the process (whether just at concept, during design development, or fully developed and ready-to-advertise design) is an invaluable skill for anyone in the construction industry. How can an estimator become better and more accurate? In order to prepare an estimate, there are several items to consider, including the estimating team, how the quantity takeoff is going to be done, what data resources are available for pricing, how the estimate's going to be prepared and organized and how it's going to be adjusted based on multiple bid factors and the construction economy. In this course, you'll learn how to utilize some of the most important resources and tools available to you, as an estimator.	1	Intermediate
<b>Construction Cost Estimating: Types and Purposes of Estimates</b>	Did you know opinion of probable cost does not mean the same thing as an estimation of cost? While this may be a term used by design consultants in the preliminary stages of a project's estimate, this should not be mistaken for an estimation of cost. This is simply a professional opinion based on experience and available knowledge. The responsibility of a Contractor is to provide a detailed quantitative analysis of each material cost or step in the process for a given project. This interactive online course will educate you on the various types of estimates that can be provided as well as the methods to do so accurately.	1	Intermediate
<b>Construction of AC and DC Circuits</b>	This course will define series circuits and parallel circuits as well as series-parallel circuits. This course will also discuss resistance and current in each type of circuit.	1	Intermediate
<b>Construction Project Delivery Systems</b>	This one hour course will provide an overview of the key attributes of project delivery systems. The primary focus will be on design-bid-build, at-risk construction management, and design-build, with some brief discussion on job order contracting, IPD (integrated project delivery), and public-private partnerships. Program and professional construction management, which can be used on all of the above-referenced systems, will also be addressed.	1	Fundamental
<b>Construction Project Documentation: Navigating Pitfalls</b>	This course will show you how to successfully document your construction projects. While all projects start with the best intentions, problems will inevitably arise. Knowing how to use common documentation forms on a construction project will help ensure the successful resolution of these problems. This course will show you which documents to use, and when; what information to include, and why; and what to say, and how to say it persuasively. You will find tips, tools, checklists, along with good and bad examples of documentation. The instructor will lead you through each step to help you navigate the pitfalls of poor construction project documentation. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Fundamental
<b>Construction Project Management: Construction Practices and Systematic Project Management</b>	In this course, we're going to present and discuss the management of field construction projects. We'll also cover management techniques for controlling cost, time, resources, and project finance during the construction process. Emphasis is placed on practical and applied procedures that have been proven effective. Effective management of a project also requires a considerable background of general knowledge about the construction industry. This interactive online course will familiarize you with certain fundamentals of construction practice. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Managing Time</b>	Did you know the schedule plays a central role in construction project management? Developing an initial schedule is a powerful tool that you can use in managing various aspects of a project, including time, resources, production, and cost. This interactive online course concentrates on using the schedule to manage the time required to execute the construction processes. It begins by considering the project as a whole, determining how to shorten the overall project schedule, and looking at the cost trade-offs of expediting the project. It then focuses on current or upcoming parts of the project with the objective of managing the project components more effectively. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Production Planning</b>	Did you know production planning begins well before the project is mobilized in the field and continues throughout the project until all field operations are closed out? Production planning is concerned with how project activities are going to be carried out. It establishes the methods to be used, the assignment of personnel, the movement of material to the workface, and the process of assembling the pieces. This interactive online course considers all resources that contribute to the job, including personnel, materials, construction equipment, the site, the environment, and anything else that might affect the job. It will also cover the lean construction process and BIM, which is beginning to change the way construction is managed and organized. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Coordination</b>	Progress reporting provides the opportunity to analyze the current status of the project. Often, this will lead to re-scheduling and corrective action to bring the project back within specified time parameters. This cycle of planning and executing activities, measuring and reporting progress, revising the plan based on current status, and updating the schedule is continued repetitively throughout the project. In this interactive, online course, we'll focus on managing the ongoing project. We begin by looking at detailed schedules used by the field supervisor to plan crew work on specific activities in the near term. Then we move on to measurement and reporting of progress.	2	Intermediate
<b>Construction Project Management: Project Cost System</b>	Did you know that managing cost for a construction project is equally important as managing time? It allows you to make decisions that will enable you to maximize resources. This interactive online course covers the various elements of the project cost cycle, starting with the estimate and moving through the project to collection of actual unit costs to be incorporated into the company cost database for use in starting the cycle again for a future project. We will also review the relationship between time and money. Although the details of a specific cost-control system vary substantially from one construction firm to another, the ensuing treatment can be regarded as being reasonably typical of current practice within the construction industry.	2	Intermediate
<b>Construction Project Management: Project Estimating</b>	If you were given the task of estimating the future expense of a unit of production in a manufacturing facility you could do it with considerable precision. A plant offers standard conditions, close controls, and consistent processes. Construction estimating, on the other hand, lacks standardization, presents challenging site locations and project conditions. Nevertheless, a skilled and experienced estimator, using cost accounting information gathered from similar previous construction projects, can do a reasonable job of predicting construction costs. The character or location of a project can present unique problems, but there are usually some basic principles and precedents that apply. This interactive online course will walk you through the steps involved in estimating construction projects starting with an overview of cost-estimating procedures and how the final project budget is reached. Then, you'll learn how to develop monthly progress estimates and change order estimates. Finally, you'll become familiar with details about specific estimates that you'll typically prepare. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Construction Project Management: Project Financial Management</b>	Did you know the project manager bears the overall responsibility for financial management of the work on a construction project? This includes carrying out such fiscal duties as may be imposed by the construction contract and implementing appropriate monetary procedures according to the dictates of good business practice. Project financial management can involve a broad range of responsibilities. This interactive online course covers project cost breakdowns, the forecasted schedule of progress payments, preparation or approval of periodic pay estimates, and documentation required for final payment. You will also learn how to monitor project cash requirements during the contract period and maintain complete and detailed daily records of the project.	1	Intermediate
<b>Construction Project Management: Project Planning</b>	Project planning is central to project management and takes place at all stages. The plan is typically very simple in concept, though it may be quite complex in execution. Additional participants in the process, such as designers, contractors, specialty contractors, and material suppliers also plan for a project. Their plans often include much greater detail but are limited in scope in order to execute their part of the project. Project planning is essential to any task, whether it be management oriented or focused on execution in the field. The product of the plan is often a schedule. In this course, you will see that the planning process, resulting in the project schedule, is what ties all of the elements of project management together. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	1	Intermediate
<b>Construction Project Management: Project Scheduling Applications</b>	In previous courses in this series, we focused more on tactical use of the schedule to manage specific components of the project, such as production, time, resources, and costs. In this interactive, online course, we'll consider strategic scheduling applications as they relate to the overall project, including legal aspects of the schedule. This course considers the role of the schedule and the variety of operational schedules available to the project manager. It also discusses the ways scheduling information can be organized and presented.	2	Intermediate
<b>Construction Project Management: Project Scheduling Concepts</b>	How would you account for weather delays in a construction project schedule? What about the availability of labor and equipment? How much time should you allow for each subcontractor to complete their work? In this interactive online course, we'll answer those questions. You'll learn how to determine the duration for individual activities and the calculation process for project times. Through examples, you'll discover new terminology for scheduling, including early and late start and finish, float, critical activities, and lag time. You'll then convert the project days-based schedule into calendar dates. We'll also discuss the pros and cons of the bar chart in construction project scheduling and how computer applications can save time and provide an array of project data in various forms. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015 All rights reserved.	2	Intermediate
<b>Construction Project Management: Resource Management</b>	Much of the job of a project manager, as well as the job of a field supervisor, focuses on the efficient investment of resources to achieve the project objectives. A resource can be considered anything that adds value to the project. When we talk of resources in the context of construction, we typically think of manpower, equipment, and materials. In addition to what we normally understand manpower to mean—that is, craft workers who actually do the work on the project—there are many other people who add value to the project. It is the job of the project manager to manage all of these resources in support of efficient execution of the project. This interactive, online course will focus on methods and procedures involved with the management of the three primary resources of manpower, equipment, and materials.	1	Intermediate
<b>Construction Site Stormwater Runoff Control</b>	Construction site activities often disturb or expose soil, which can increase erosion and cause sediment to be picked up and carried off by stormwater runoff. If not controlled, this sediment and other pollutants at construction sites can be carried away and deposited in nearby wetlands, waterways, and fragile habitats. This can harm aquatic plants, fish, and wildlife, and degrade water quality for municipal, industrial, and recreational uses. In the U.S., operators of large construction sites are often required to obtain stormwater discharge permits from the EPA, the state, or local authorities. To begin this process, you must create and implement a stormwater pollution prevention plan (SWPPP).	0.5	Intermediate
<b>Contactors and Relays</b>	Contactors and Relays is a course designed to familiarize participants with the operation and use of magnetic contactors and relays. After completing this course, participants should be able to describe the operating principles of magnetic contactors and relays, and explain how both types of devices are used in electrical systems. They should also be able to describe the components and operation of low-voltage remote control switching systems.	2	Intermediate
<b>Contaminated Condensate Systems</b>	In the process of cooking and breaking down wood to create individual fibers, the kraft pulping process generates some undesirable by-products. These by-products all have safety and environmental impacts. This module will focus primarily on the collection and treatment of contaminated condensate streams.	0.5	Intermediate
<b>Contract Guide for Design Professionals - Basic Principles</b>	This course is written primarily for the design professional - architects, engineers, and other persons that provide professional opinions and services for construction projects. The discussion of contract clauses in this course is intended to provide general information and education for use on traditional design-bid-build projects and does not necessarily apply to the design-build method of contracting. This is because the expectations of the parties on design-build projects are generally different than those on design-bid-build projects. Also, the terms and conditions of contractual agreements on those projects will reflect those different expectations—resulting in a different allocation of risk between the parties. Nevertheless, for a few of the key terms and conditions, a brief discussion of risk allocation and risk management on design-build projects is included in this course. In a similar manner, although this course is focused on traditional commercial projects, brief discussions of clauses and risk management issues germane to Environmental Remediation contracts are included. This course outlines a number of the contract clauses most often identified by construction lawyers and professional liability insurance carriers as requiring particular attention with regard to risk allocation.	3	Fundamental
<b>Conveyor Safety</b>	Conveyors are involved in about 50 deaths in the U.S. every year. When used properly, conveyors can reduce workloads, make production more efficient, and prevent injuries that result from carrying materials manually. This course will discuss the most common types of conveyors and their hazards, the types of guarding around conveyors, general conveyor safety, and what to do during and after an emergency. Taking this course and understanding the hazards conveyors present will help keep you and your co-workers safe.	0.5	Intermediate
<b>Cost Estimating: Fundamentals</b>	Engineers, architects and contractors are often asked to prepare cost estimates when working on a new project. This 1-hour interactive online course takes you through the process discussing where, in the various stages in project development, cost estimates are made. Through illustrations, you will consider different methods of cost estimating, the level of project detail required for each, and when the use of each method is indicated. You will understand the uncertainties associated with a bid due to level of detail available and the economics of inflation. You will learn to recognize these uncertainties and include contingencies and adjustments for inflation. For those who are new to cost estimating, this course is an introduction. You may find yourself going over sections more than once. For the experienced Estimator, you will find this course a guide and a reference as the only way for any Estimator to improve is to practice what they have learned. Move on through this course and into the field of cost estimating. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
Co-worker Coaching	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Co-worker Coaching human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Crane and Hoist Rigging Safety	Definition of rigging and slings, importance of safe rigging, load considerations, types of slings, types of sling hitches, safe rigging practices, and commonly required personal protective equipment (PPE).	0.53	Intermediate
Crane and Hoist Rigging Safety for Canada	Setting up safe and secure rigging for a crane lift is of the utmost importance; possibly more important than the operation of the crane itself. This course gives an overview of the primary rigging issues that affect crane and hoist safety. Workers will learn about the materials used for rigging and slings, the various sling hitches used, and basic safety precautions. It is based on General Industry and Construction regulations, as well as recognized best rigging practices. It is also aligned with regulations that require riggers in the construction industry to be qualified.	0.5	Intermediate
Crane Hand Signals	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
Crane Hand Signals for Canada	Clear and consistent communication between a signal person and a crane operator is essential for safe crane operation. The use of standard hand signals will ensure there are no misunderstandings between the signal person and the crane operator. This module will cover standard hand signals that can be used for most crane operations.	0.25	Intermediate
Crane Lift Planning	When involved with a lift have you ever asked yourself, I wonder if the crane is big enough? or Is the rigging set up properly? or Is it safe to move loads over or under a power line?. If you have thought of questions like these, then chances are there was too much risk in the lift. In this interactive online course we will cover, why lift planning is important, when a plan is needed, and who prepares the plan. We will also discuss the key roles and responsibilities associated with crane lifting activities and identify what information is contained in a lift plan. Then we will cover the purpose and value of a pre-lift meeting and the function of 3D computer modeling software in creating a lift plan.	0.5	Intermediate
Create a Windows App Using Free Tools and No Coding	Won't it be cool to create your own app? There is so much joy in seeing your app published or finding unique ways to share your content. Although, many of us do not have coding knowledge or simply do not have the time to learn a programming language. Those obstacles should not stop us for publishing our ideas and content. Nor should the barrier of expensive development costs - either in the form of programmers or software tools or web services. This course is aimed at those who may or may not have content created but are unable to share their content via mobile or desktop apps because of time, costs, or IT resources and has been put together to show you how you can accomplish your goal of creating and publishing your own app without enduring the pain of learning a complicated code or paying additional fees. The course begins with the concepts and the design considerations one might think about when developing their app. And since this course uses whatever free resources are currently available, time is spent discussing the limitations present. After framing the design and objectives, the course creates apps step by step. The course builds upon itself as it progresses. The learning starts simple and then adds more complex content. At the end - and actually even at points up to the end - you will have your very own Windows app to share, use, and publish in the Windows store. There are options to port your app over to other operating systems and platforms briefly discussed at the end. You will have the pride and joy of knowing you accomplished something great. It will open your mind to all the possibilities that await and ignite your creative and problem solving drive. Ready? Let's build something.'	2.5	Intermediate
Creating a Code of Conduct	Ever wonder if a certain behavior is appropriate or out of bounds? Perhaps it is appropriate in one setting, between certain people, but not appropriate in another setting. Well, wonder no more! This course will take you through the steps to determine appropriate conduct and to navigate tricky or touchy ethical situations. To do or not to do . . . that is the question employs application exercises and a rich multi-media process, to increase your awareness and understanding and to provide you with a guide to navigate the sometime murky waters of ethics and appropriate code of conduct.	0.5	Intermediate
Creating Word Templates	Don't re-create documents over and over! Learn about templates in Word to increase your productivity, save time, and create consistency. Being able to consistently create documents that have a uniform look and adhere to company standards can be challenging and time consuming. Use the templates feature in Word to do this effortlessly. Learn basics about effective design and using headings, sections, and your company's logo, fonts, and colors to produce professional and effective documents that will stand out!	0.5	Fundamental
Crime Prevention Through Environmental Design: Surveys & Floor Plan Reviews	This course will introduce Crime Prevention Through Environmental Design (CPTED), as it pertains to professionals assisting their clients to design or obtain safer built environments. Students will understand the CPTED strategies so that they can incorporate them based on clients' needs or better understand the strategies when dealing with security planners or consultants. Displayed examples will include physical security surveys and architectural plan reviews so that after-market security countermeasures can be reduced or eliminated. CPTED can also assist professionals with bidding processes. This course will explore residential, commercial, and venue CPTED concerns through multiple examples of floor plan reviews and physical security survey checklists.	2	Fundamental
Critical Facilities - Emergency Electric Power	Providing emergency electric power is of critical importance for several types of facilities, and can be mandated by regulatory agencies. For example - emergency egress lighting, hospital emergency rooms, cooling for medical supplies storage, and protection from interruption of public utilities. These systems also help in preventing significant economic losses and, in some cases, disastrous results from natural events. This course presents key information regarding emergency electric power. Included in the topics covered are emergency vs. standby systems, applicable codes, terms and definitions, system components, environmental considerations, and fuel systems. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information extremely valuable.	2	Fundamental
Critical Thinking and Problem Solving	Are you constantly firefighting? Does it seem as though problems always appear at the last minute or just before the weekend? In this course, you will learn strategic steps to prevent much chaos and solve new or recurring problems. Through the use of application exercises and rich multimedia process, your ability to think critically and solve problems effectively and in a timely manner will increase thus propelling your end results to new heights.	0.6	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Crystalline Silica Awareness</b>	Crystalline silica is a form of silicon dioxide which occurs naturally in the Earth's crust. When it is broken up by high energy activities into small airborne respirable particles, it can cause serious health hazards when inhaled. The symptoms caused by inhalation may not be immediately apparent. It is critical that individuals working around crystalline silica are knowledgeable of its physical properties, understand its safety risks, and know how to effectively avoid exposure. With the proper protective measures, training, and PPE, exposure to respirable crystalline silica can be reduced to the point that it is no longer a health threat to those who must work around it.	0.5	Intermediate
<b>Current, Voltage, and Resistance</b>	Electricity is a form of energy, and when considering circuits, electricity is defined as a flow of electrons. The flow of electrons is called current. Current flow occurs under the influence of a charge difference that is called voltage. Resistance is the tendency of a component to hinder the flow of current. This course briefly reviews the aspects of atomic structures that allow the flow of electricity and then describes the relationship between current, voltage and resistance in an electrical circuit.	0.25	Intermediate
<b>Cut and Puncture Wound Prevention</b>	Workplaces are full of cut and puncture wound hazards. Some cuts are minor and can be simply addressed by those trained in first aid; others require a trip to the emergency room. This course discusses how to treat cuts and puncture wounds, and more importantly, how to prevent even minor injuries from occurring in the first place.	0.5	Intermediate
<b>Cybersecurity Awareness for Business Leaders: Creating A Cybersecurity Culture</b>	With today's wide range of threats, it is a must to ensure minimum standards of security. We often think that purchasing expensive security appliances can take care of it, but it's not even close. In this course, we learn the importance of injecting a cyber security culture in the mind of the people, executives and employees, understanding the roles of each department and key people to sustain the program, how to lead our teams for a more secure digital life and finally the importance of yearly training in maintaining constant secure environment.	1	Fundamental
<b>Cybersecurity Awareness for Business Leaders: Incident Preparedness and Management Planning</b>	Maybe there is no way to eradicate threats and incidents completely, but surely being prepared and ready to anticipate incidents, can make the difference in limiting the damages. In this online training we will identify the best practices to mitigate incidents, different types of cyber security insurance; how to get our team ready for attacks and how to effectively manage the crisis when an incident occurs. Moreover, we will learn the importance of post-event crisis management.	0.5	Fundamental
<b>Cybersecurity Awareness for Business Leaders: Laws and Global Compliance Standards</b>	When it comes to compliance, business and corporate management should keep a close eye at being obedient to all of the legal laws and regulations in regards to how they manage the business and preserving their data. In many cases, deviations from the baselines has cost businesses huge penalties and fines, as well as delayed losses; therefore, in this training, we will be looking at regulations and their importance, key items to secure our business and personal data.	0.5	Fundamental
<b>Cybersecurity Awareness for Business Leaders: Safeguarding Against Social Engineer Attacks</b>	Social engineering has become the favorite tool for hackers to target and breach sophisticated networks, it remains an open window in almost every environment. In this course we will gain knowledge about the latest social engineering techniques and how hackers can obtain business and personal information about us to craft targeted attacks that may result in huge damages. We will learn also to identify intellectual property and how to safeguard it.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use</b>	Failing to become cyber aware, failing to put measures in place that will protect our devices and network is also failing to protect our personal information, our place of business, and our customers. In this interactive online course we will discuss why classifying and safeguarding data is a priority that must not be ignored. We will also list the main types of classifications and state objectives for securing data.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: End-User Best Practices</b>	We live in a busy, busy world. When it is so easy to connect to the internet and access vast amounts of information, it is easy to forget the dangers that lie in wait. From hotspots to password management, this interactive online course will walk you through end-user best practices. We will also discuss the importance of administrative rights, define types of physical attacks against privacy, and recommend ways to protect against malwares and viruses.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Security Awareness Essentials</b>	In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. In this interactive online course, we learn about the who, what, how, and why of security attacks. We discuss the potential losses associated with a successful security breaches by hackers and will understand the different way in which those security breaches can occur. Finally, we cover important actions you can take within your organization to limit security risks.	0.5	Fundamental
<b>Cybersecurity Awareness for Employees: Social Engineering</b>	Social engineering is the art of extorting information from employees that can assist a hacker to breach the security of an organization and can be done by a human or it can be done digitally. In this interactive online course we will define phishing and identify common features, examples, and how to avoid phishing scams. We will also discuss identity theft and how to protect against it.	0.5	Fundamental
<b>Cybersecurity Overview</b>	The convenience of web access makes it easy to forget that we need to protect and care for our information. This introductory course provides an overview of cybercrime and cybersecurity, including the basics of cybersecurity along with the effects of cybercrime, the types of cyber threats and how users are susceptible.	0.25	Fundamental
<b>Dangers of Distracted Driving</b>	Driver distraction has become a serious problem, and unfortunately, seems to be increasing. Think about the last time you drove or rode in a car. Did you notice other distracted drivers? Or, were you distracted while driving? Even though most people know distracted driving is risky, they still become distracted while they drive. This course will describe why distracted driving is risky and identify strategies to reduce distracted driving.	0.25	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Data Centers: Connectivity Requirements and Architectural Layouts</b>	Once a site for a data center has been identified and acquired, the multi-year process of design, construction, testing & commissioning, and equipment installation begins. Data Centers are resource hogs - but above all, they require tremendous amounts of power and data communication to operate effectively and efficiently. Appropriate network (power & communication) designs are essential; robust and redundant facilities are mandatory to a 24x7x365 uptime environment. Housing this equipment through appropriate site (Civil) and superstructure (Structural) design and construction efforts is the first layer of defense against network or equipment failure. So, what does it take to make a data center run reliable? In this course, we will review the connectivity demands and requirements for fiber and power, as well as some of the best practices for architectural and structural layouts in modern data centers.	1	Intermediate
<b>Data Centers: MEP, Fire Protection, and Equipment Rooms</b>	Connectivity. The internet of things. Uptime. Reliability. What are these things? These are all terms and concepts that relate to the always connected, always on world that has evolved out of the digital age. The cornerstone of these concepts is the modern data center - massive, hulking, and also secretive buildings that house the hardware, firmware, and software that power our everyday lives. Email, phone calls, Facebook, Google - these are all services provided by the computers housed in data centers. They are located all over the country and the world. They are in high rise buildings in dense urban areas, and they are located in remote rural campuses. They are small, occupying a few thousand square feet in old, Tier I locations, or they can be massive, hundreds of thousands of square feet with 50MW of electrical power. These technological marvels require significant infrastructure to maintain the always-on, always-available status that we demand of services in the modern world. That level of reliability is not achieved through chance. Significant effort and expense is required to facilitate conditions that are conducive to 24x7 reliability. Not the least of which are Mechanical, Electrical, Fire Protection, and Security Systems for these centers. In this course, we will dive into the complexities of these systems. By the end of this course, you will be familiar with the unique language and terms used to discuss the various elements of these systems - like PDU, UPS, EUI, and PUE (and, no, since this is not a one-man interpretation of Robin Williams' efforts in Good Morning, Vietnam! you can rest assured that I didn't make up any of those terms). You will also be able to understand the challenging design strategies that drive the installation and maintenance of these complex and integrated systems, and you will also have a much more in-depth understanding of the costs that drive data center design, construction, and maintenance efforts. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	2	Intermediate
<b>Data Centers: Operations &amp; Maintenance, Upgrades, and Expansions</b>	If you have been following along with Red Vector's data center video series, or if you are familiar with the industry, you have an idea of the cost, time, and effort that goes into delivering a data center. From the time that a need is identified, through site search and location, design development, construction, commissioning, and turnover, a company might easily wait 3-5 years or more, and have spent well into the 9 figures. For that level of cost, effort, and duration, you might, not unreasonably, expect the data center to run itself, and maybe even do the dishes, or at least prepare cocktails for the ribbon-cutting ceremony. There is, in fact, an industry term that even implies a self-sufficient facility - a lights-out data center. Sadly, at least given current technology, such a scenario is not yet plausible. Without a constant, vigilant, well-planned and well-executed Operations & Maintenance, or O&M program, even the most robustly designed and well constructed and commissioned facility is doomed to failure, sooner or later. In addition to a robust O&M program, while not necessarily inevitable, it's quite typical that over the life of a facility that might well cost over \$100M to construct, and house equipment worth multiple times that initial construction cost, a data center will experience an expansion, a system upgrade, or both. For a number of reasons, many of which we will outline later in this lesson, expansions, either planned or unplanned, are a common occurrence in the life of a data center. Upgrades are also quite common given that the life of a data center - typically planned for no less than 25 years - exceeds the expected life of even the most well-maintained electrical and mechanical systems. Thus, over the life of a data center, as untold trillions of bits of information constantly course in, out, and through the facility, the facility manager will all but certainly be faced not only with maintenance of that 99.999% uptime environment, but the assurance of that uptime in the face of upgrades and expansions. Let's take a look at how best practices can minimize risk and maximize chances for success in the face of such a demanding arena.	1	Intermediate
<b>Data Centers: Planning, Siting, and Selecting</b>	Data centers are the brain and nerve centers of today's high tech environment. Email, webpages, phone calls, banking records, online purchasing, and facilities controls are just a few of the myriad items that require efficient, accurate, and secure electronic transmission and storage. The crux of this entire system is the modern data center - millions of square feet of high power and cooling density systems that process quadrillions of signals. Data Centers can cost in excess of \$1B to design and construct - and most systems rely on multiple data center locations. Properly siting and planning the data center, or data center network, is the first step in a multi-step process.	2	Intermediate
<b>Data Centers: Trends, Technologies, and Efficiencies</b>	Welcome to the final installment of Red Vector's Data Center Video Series. Today we'll be looking into where Data Center design, construction, operation, and utilization is likely headed in the coming years. Hopefully you have already been able to take advantage of Red Vector's other Data Center Video Series installments, including our segments on location siting and selection, utility and architectural design, Mechanical and Electrical design, and best practices for facility Operations and Maintenance. If you haven't yet taken advantage of these great titles, you should definitely check them out, as they provide essential background information for a more robust understanding of all facets of data center conceptualization, design, construction, and operation. But right now, we're going to try to peer into the future a bit to see where this industry is likely headed. To best forecast where we are headed, though, it's most often beneficial to understand how we've already gotten where we are.	1	Intermediate
<b>Dave Gibson's All-Star Lot &amp; Block Boundary Cases</b>	Discussing the legal points of a good boundary case is FUN and instructive!! This six hour online course presents interesting land boundary cases that I've enjoyed over the years. They are particularly instructive as to the proper application of boundary location principles for LOT AND BLOCK land parcels. For each case, I'll give a problem statement and then I'll suggest alternate approaches, principles, and solutions. HERE ARE THE INCLUDED CASES: (1) LOT 21 KILARNEY LAKES, (2) PALM COURT, (3) AKIN v. GODWIN, and (4) PALM HARBOR. You can also take these as individual courses offered on RedVector.com. You should do one or the other. Take all four together in this course, or take them individually. For each, you must then solve the case according to what you think is the proper application of survey principle. I'll then give my 'best practices' solution and defend it with the reasons why I think my solution is the 'best practices'. You may or may not agree, but you'll learn from this course. If you love to discuss boundary location situations, then you will love this course and learn something new. You will also learn other viewpoints for your consideration. Even though the cases are tough ones, the beginner can benefit from the instruction they give as much as or more than the experienced practitioner. I hope you enjoy them!!!Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	6	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Dave Gibson's All-Star Metes &amp; Bounds Boundary Cases</b>	Arguing the legal points of a good boundary case is FUN and instructive!! This six hour online course presents interesting land boundary cases that I've enjoyed over the years. They are particularly instructive as to the proper application of boundary location principles for METES AND BOUNDS land parcels. For each case, I'll give a problem statement and then I'll suggest alternate approaches, principles, and solutions. For each, you must then solve the case according to what you think is the proper application of survey principle. I'll then give my 'best practices' solution and defend it with the reasons why I think my solution is the 'best practices'. You may or may not agree, but you'll learn from this course. HERE ARE THE INCLUDED CASES: (1) Frost's Survey, (2) Henderson et al, (3) Simple 300x100 Parcel, and (4) Stefanic et al. You can also take these as individual courses offered on RedVector.com. You should do one or the other. Take all four together in this course, or take them individually. If you love to discuss boundary location situations, then you will love this course and learn something new. You will also learn other viewpoints for your consideration. Even though the cases are tough ones, the beginner can benefit from the instruction they give as much as or more than the experienced practitioner. I hope you enjoy them!!! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	6	Intermediate
<b>DC Fundamentals Review</b>	The fundamental relationships between current voltage and resistance in direct current (DC) circuits are basic to understanding all types of electricity and electrical circuitry. This course is intended as a general review of basic electrical concepts and circuit analysis for participants already possessing some background in electrical theory.	1	Intermediate
<b>DC Generator Basics</b>	A simple direct current (DC) generator consists of an armature coil with a single turn of wire. The armature coil cuts across the magnetic field to produce a voltage output. This course describes commutation in a DC generator, the major parts of a DC generator, and three basic ways a DC generator can be constructed.	1	Intermediate
<b>DC Motor Controller Maintenance, Part 1</b>	This course provides participants with an introduction to direct current (DC) motor controller classification and parts identification, controller diagram symbols and schematics, and how DC motor controllers change motor speed and direction.	1	Intermediate
<b>DC Motor Controller Maintenance, Part 2</b>	This course introduces participants to the basic steps for troubleshooting a direct current (DC) motor controller, different types of controller diagrams and how to read them, methods for identifying mechanical problems, and the maintenance needed to prevent or correct these problems.	1	Intermediate
<b>DC Motor Maintenance</b>	Anyone who is responsible for maintaining direct current (DC) motors in an industrial facility has to have a thorough understanding of the specific techniques and procedures that are used to keep DC motors in top operating condition. Familiarity with the ways that DC motors operate and the methods used to classify and identify them is also important. To help prepare electrical maintenance personnel for working on DC motors, this course contains specific information covering DC motor operation and classification as well as detailed descriptions of procedures for troubleshooting, disassembling, inspecting, and reassembling a typical DC motor.	1	Intermediate
<b>DC Motor Operation</b>	A DC motor is an electrical device powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device that converts alternating current (AC) to DC. Although motor designs may vary, all DC motors perform the same basic function. They convert electrical energy into mechanical energy to spin, lift, wind, or move objects.	0.25	Intermediate
<b>DC Motor Types</b>	DC motors are electrical motors powered by direct current, or DC. DC is a type of electrical current that flows in one direction only, from sources such as batteries or solar panels. DC may also be produced through the use of a rectifier, which is an electrical device which converts alternating current (AC) to DC. This module will describe the design, operation, and applications of series, shunt, compound, permanent magnet, and separately excited motors.	0.25	Intermediate
<b>DC Power in the Data Center</b>	Alternating Current (AC) power has been the default for data centers due to many factors, such as equipment availability and familiarity. As companies and agencies push for better energy efficiency, Direct Current (DC) power may become a more viable choice for energy, reliability, and availability of a data center. This course walks through a typical data center power chain then compares using DC power with discussion on five of the most typical DC power voltages in use today.	1	Intermediate
<b>Decision Making</b>	Decision Making is a course designed to familiarize participants with techniques for making informed decisions and implementing them successfully on the job. After completing this course, participants should be able to describe common examples of poor decision making, describe some general types of decisions, describe several questions that should be asked before a decision-making process begins, explain how to define the desired outcome for a decision, and describe how to gather information to make an informed decision. Participants should also be able to describe how to build consensus during the decision-making process, explain how to use an impact/effort grid and weighted voting in the decision-making process, and describe the steps for successfully converting a decision into action. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Decks, Stairs, Rails for Home Inspectors</b>	In this course we'll cover the design and construction of the decks, stairs, and rails from the home inspector's point of view. I'll review some of the basic definitions so that you'll know the proper terminology to use in writing your reports. You'll learn what to look for to ensure proper support. You'll see pictures of good construction compared to unsafe construction. We'll cover materials and fasteners and I'll give you specific examples of what you need to watch for and document. We'll review the requirements for heights, widths, and distances between components to assure a safety for users, and as we go through the course, I'll give you inspection tips from my own experience.	2	Fundamental
<b>Deconstruction and Reuse: Sustainable Construction in Reverse</b>	This interactive webcast focuses on the differences between conventional demolition and deconstruction. We will also focus on the environmental and economic rewards from taking a building apart - either wholly or partially - with the intent of salvaging (recycling or reusing) building materials. This approach varies greatly from conventional demolition which involves material removal and disposal. This course will focus on the types of building materials and their potential for reuse. Some materials have a long tradition of reuse (e.g., bricks, metal), whereas other materials are now finding a new vocation (e.g., plumbing fixtures, doors). We will also explore case study examples of both evolving deconstruction techniques and the types of materials salvaged.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
Design of Bicycle Facilities - Buffered Bike Lanes	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle transportation networks. One of the key elements being used to improve bicycle transportation networks is the construction of buffered bike lanes. In this interactive online course, key planning and design considerations for buffered bike lanes will be reviewed. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of buffered bike lanes and that support their implementation, such as traffic separator options, mid-block crossings and intersection accommodations.	2	Advanced
Design of Bicycle Facilities - Cycle Track Design	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing main bicycle thoroughfare facilities, such as cycle tracks, as key elements of their transportation network. Cycle tracks can be considered as bicycle arterials or bicycle highways; this interactive online course will outline the planning and design elements needed to develop cycle tracks that support this main thoroughfare purpose. Engineers, Architects, Contractors and other professionals from the A/E industry will learn design guidelines for elements that form part of cycle tracks and that support their implementation, such as ADA accommodations, vehicular traffic level considerations, and the design of geometric elements to accommodate on-street parking, transit facilities and left-turn movements from the cycle track.	2	Advanced
Design of Bicycle Facilities - Multi-Use Paths	In the past 10 years the United States has experienced an 80% increase in the use of bicycles as a mode of transportation and a 30% increase in pedestrians. While in contrast, there has only been a 5% increase in the use of motor vehicles. For this reason, more and more cities are developing robust bicycle and pedestrian transportation networks. One of the key elements being used is that of multi-use paths. Engineers, Architects, Contractors and other professionals from the A/E industry will gain core knowledge under this course for the planning and design of multi-use paths. This interactive online course will cover key guidelines from AASHTO, FHWA and NACTO in the development of multi-use paths, with a special emphasis in ADA elements, geometric requirements such as horizontal and vertical curvature design, and the adequate development of multi-use path crossings and roadway mid-block crossings.	2	Advanced
Design of Buildings for Coastal Flooding	This course provides information important to the design of foundations used in coastal areas. The design methodology comes from FEMA's Coastal Construction Manual (CCM) and has been developed from studying failures after numerous coastal storms. Flood loads are developed using both ASCE 7 and the CCM and applied to pile supported structures. Other flood effects such as erosion and scour are covered. Pile design is discussed as well as bracing methods used in pile systems. An example of how to calculate flood loads and how to apply them to the foundation at a coastal location is included to help provide context on the method and magnitude of the loads.	2	Advanced
Design of Buildings Using Insulated Concrete Forms (ICF)	This course is intended to present a comparison of engineering analysis approaches to the design of building structures for Insulated Concrete Forms. The course covers the Prescriptive Method (developed by HUD through PCA) and the two appropriate sections of the 2011 ACI code for walls. A simple, 2-story house with a basement is used as an example to demonstrate the application of both of these methods for a 6 inch thick waffle-slab and a flat panel ICF wall.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Analysis and Design of T Beams and Doubly Reinforced Beams	In this course you will learn ways to analyze T beams and utilize doubly reinforced beams. This course will demonstrate how to size and find required quantity of steel based on the consideration of strength and serviceability requirements. This course shows how to utilize doubly reinforced beams to account for bending moments. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Bond, Development Lengths, and Splices	In this course we will cover how to properly bond beams for a variety of purposes by calculating the development lengths for the reinforcement bars, which will help to provide extra strength to the beams. Factors affecting your developmental length calculation will also be covered, such as critical sections of a beam. We will also cover how splices can help or hinder your project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Rectangular Beams and One-Way Slabs	In this course you will receive comprehensive information on rectangular beams and one-way slabs. We will give you load factors, considerations necessary for beam design, limitations of lateral bracing and deep beams, and examples of beam design. We'll also cover bundled bars, one-way slabs, and reinforcement of cantilever and continuous beams. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Design of Short Columns Subject to Axial Load and Bending	The purpose of this course is to cover some of the aspects of a column that will influence your selection, design, and/or analysis of a column(s) to be used in the support of a structure. This course will cover such topics as: Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Describe types of columns Discuss failure of tied and spiral columns Identify the limitations specified by the ACE Code requirements Define economical column design Recognize formulas for design of axially loaded columns Describe various reinforcing methods Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
Design of Reinforced Concrete Using the ACI Code: Flexural Analysis of Beams	In this course you will learn the three progressive stages that occur before a beam collapses and how to calculate the stress of concrete beams at the different stages. In this course, we will cover formulas you can use to calculate a beam's stress, both in concrete and steel, and when those formulas should be used. We will be utilizing examples to enhance your understanding of each formula's use and what is occurring at each stage. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced

## AEC Complete

Title	Description	Hours	Level
<b>Design of Reinforced Concrete Using the ACI Code: Introduction</b>	This course will introduce you to concrete and reinforced concrete. You will get definitions, advantages and disadvantages, and descriptions of the different types of concrete. We'll examine all the aspects of concrete - its composition, compatibility with steel, weights and strengths, and load types. You will learn to analyze your concrete needs and to identify the solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Introduction to Columns</b>	You need to be familiar with many types of columns in order to design the safest, most economical building that makes the best use of interior space. This course gives you the types of columns, information on column failure, and the limitations of the ACI Code. You also get a discussion of economical column design and formulas you can use to design for axially loaded columns.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Serviceability</b>	Serviceability addresses the issue of performance. In this course you we will examine deflections and cracks. We'll give you background material on the importance, control, and calculation of deflections. You'll be instructed in effective moments of inertia, long term deflections, simple-beam deflections, and continuous-beam deflections. We'll also review types of cracks, control of flexural cracks, ACI code, provisions concerning cracks, and miscellaneous cracks. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Shear and Diagonal Tension</b>	The objective of today's reinforced concrete designer is to produce ductile members that provide warning of impending failure. To achieve this goal, the code provides design shear values that have larger safety factors against shear failures than do those provided for bending failures. The failures of reinforced concrete beams in shear are quite different from their failures in bending. Shear failures occur suddenly with little or no advance warning. Therefore, beams are designed to fail in bending under loads that are appreciably smaller than those that would cause shear failures. This course discusses shear and diagonal tension on reinforced concrete and how different types of reinforcement can help mitigate the damage caused by cracking. Definitions related to concrete construction and reinforcement will be provided, as well as shear design example problems. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	2	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Slender Columns</b>	When a column bends or deflects laterally an amount, its axial load will cause an increased column moment equal to P. This moment will be superimposed onto any moments already in the column. Should this P-moment be of such magnitude as to reduce the axial load capacity of the column significantly, the column will be referred to as a slender column. In this course we will examine the characteristics of slender columns and how the ACI code applies to these columns, paying close attention to the calculations and procedures used in determining K factors and computing moment magnifiers. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Strength Analysis of Beams</b>	This course takes a look at strength analysis of beams according to the ACI code. You will be introduced to two different design methods, working-stress design and strength design; with the focus of the course pertaining to strength design. We will take a look at the advantages of strength design and why it has moved to the preferred method. We will examine two methods used for calculating structural safety of a reinforced concrete structure. We will take a look at varying expressions associated with stress load and beam integrity. We will explain the different ACI codes and how they relate to beam strength. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Reinforced Concrete Using the ACI Code: Two-Way Slabs, Equivalent Frame Method</b>	In this course, we will illustrate how moment distribution can be applied to the analysis of structures consisting of non-prismatic members. We will also explain the difference between the direct design method and the equivalent frame method, and list the properties of slab beams and columns. An example problem using the equivalent frame method will be demonstrated, as well as explanation of the benefits of computer analysis. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2014, 2009, 2006, 2005 All rights reserved.	1	Advanced
<b>Design of Steel Elements for Second Order Effects</b>	Many steel designers do not incorporate the requirements of Chapter C Design for Stability (AISC 14th Edition) into their design of steel elements. Chapter C states that stability shall be provided for the structure as a whole and for each of its elements and that the effects of second order effects (also called P-delta effects) shall be considered. It also states that the approximate methods defined in Appendix 8 is permitted as an alternative to a rigorous analysis. This course will define these second order effects and their parameters, calculate their values and compare designs with and without these effects. Simple guidelines will be developed for their use.	1	Intermediate
<b>Design of Utility Infrastructure</b>	Utilities and their infrastructure are one of the main facilities that support our modern society. From drinking water to telecommunications, underground utilities provide the basic services for our communities. Thus, their design is a critical component of construction projects. Through this interactive online course, engineers, architects, planners and contractors will learn design criteria for the design of different utility types, from gravity to pressurized flow facilities.	2	Fundamental
<b>Design of Water Efficient Buildings</b>	This interactive webcast will discuss approaches for conserving water including water efficient building technologies, simple systems for recycling and reusing water on site, and how to drastically decrease the demands on shared supplies. This course will also discuss the many great environmental and economic benefits to water efficient buildings. We will conclude with details on LEED (Leadership in Energy and Environmental Design) criteria for water efficiency, plus additional case study examples on innovations in wastewater treatment and reuse	2	Fundamental
<b>Design Traffic and Traffic Impact Study for the Non-traffic Engineer</b>	If you work with traffic engineers or transportation planners as part of a project team, then this course is for you! Learn what inputs the traffic professionals need to produce traffic studies, and what kinds of data they can provide on a project, all while learning how to coordinate projects more smoothly. This course will explain land use, access, and 'build out year' information that a traffic engineer needs in order to do a site impact study for a new development - and what the effects will be if any of that information changes during the study. It also explains how design traffic for roadway projects is developed, and how transportation projects are created, prioritized and scheduled as part of a Long Range Transportation Plan - LRTP.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Design-Build Project Delivery System</b>	This 5-hour online course is the first part of a two part comprehensive course that explains how the system works and why it is successful today. The Design-Build project delivery system is growing in popularity in both the private and public sectors of the construction industry. There are a number of market trends as we proceed into the 21st century that favor this project delivery system over the currently traditional system of design-bid-build. An integrated approach and renewed focus on innovation places the design-build project delivery system in a unique position to address the current challenges that the construction industry faces. This course provides you with a review of how the Design-Build project delivery system has emerged today and compares and contrasts it with other current methods that are being utilized. The course will then take you through the specific strategies and tactics that make it successful. These steps include formation of the design-build team, responsibilities of the owner, responsibilities of the design-builder, performance specifications for design-build projects, and the complete design-build procurement process. There is a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Advanced
<b>Design-Build Project Implementation</b>	Design-Build Project Implementation is the second part of a two-part comprehensive course series that explains how the design-build system is implemented after the contract award. This 4-hour online course outlines the contract formation process associated with design-build projects including specific contracting issues and contract forms. This course also presents the laws and liability involving all parties of the design-build process as well as insurance, bonding, management techniques. Finally the advantages and disadvantages of the design-build process are listed separately for the owner, designer and builder. There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced
<b>Designing and Specifying Pervious Concrete</b>	This two-hour webcast provides an overview on implementing pervious concrete pavements as a solution to reducing stormwater runoff from building sites and other paved areas. Participants will learn about pervious concrete pavement systems, engineering properties and construction techniques. The first hour discusses hydrologic and structural design of pervious concrete pavements. The second hour addresses the specifics that every specifier should consider when drafting pervious concrete specifications, with a focus on American Concrete Institute (ACI) Committee 522 Guide to Specification for Pervious Concrete. This webcast will help civil engineers, architects, landscape architects and public works officials understand the principles behind pervious concrete design. Contractors, product suppliers and land developers will also benefit from this webcast.	2	Intermediate
<b>Designing Beautiful Documents</b>	Create perfect documents with five easy techniques. Have you ever noticed that some documents look perfect? They have a certain polish, a certain style, that tells everyone who sees them that THIS was created by a professional? There is a science to creating beautiful documents. In this course, communications guru Jamie Gillenwater demonstrates the five techniques that anyone can use to create beautiful, professional, respectable documents.	0.5	Fundamental
<b>Designing Buildings for Tornadoes</b>	This course will present the most up to date ideas about designing buildings for the devastating effects of tornadoes. The focus will be on how to improve building performance and reduce damage to buildings impacted by tornadoes. The presentation will cover tornado research topics, design methods using ASCE 7-10 with needed modifications to account for tornado wind structures, and some examples on how to apply these concepts to building design.	1	Intermediate
<b>Designing for Flood Loads Using ASCE</b>	This course will provide technical information important to flood design for all types of buildings and all types of flood conditions. We will cover the minimum design and construction standards required by regulations. You will learn the current design methodologies for foundation issues for both riverine and coastal buildings. This course will cover the limitations of prescriptive solutions for flood-design problems. Flood load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures and ASCE 24 Flood Resistant Design and Construction will be discussed. And you will learn how to retrofit existing buildings with flood-resistant features. As we learn more about this devastating hazard and communities strive to be more sustainable, flood provisions in state and federal regulations are changing, as well as design concepts and methodologies, making it essential for engineers to remain engaged with these changing methodologies.	2	Advanced
<b>Designing for Occupant Comfort: SPF Insulation</b>	The air barrier system within the building envelope is the most important single element in controlling moisture, energy losses and gains, and structural integrity. This 1-hour interactive online course covers the different factors that affect occupant comfort in buildings and the effectiveness of spray polyurethane foam (SPF) insulation in maintaining proper relative humidity and temperature levels.	1	Fundamental
<b>Designing Foundation Repairs</b>	What is causing that crack in the building? How can you repair it? Building foundations provide structural support to buildings but are often damaged and rendered nearly useless by many natural events (hurricanes, drought, excessive rain, etc.). Most foundations can be repaired and returned to their original load capacity, but each foundation damage case can present unique challenges depending on the extent of damage, the foundation material used, the foundation depth in the ground, and the loads being carried by the foundation. In this interactive online course, we will discuss different types of building foundations and several types of causes of foundation failures. We will also cover methods for foundation repair, as well as new materials and technologies used in repair.	2	Intermediate
<b>Designing Permanent Erosion and Sediment Control Systems</b>	Development of land, whether it is for a new highway or a new office building, requires the re-contouring of terrain. And as such, requires a redistribution of drainage patterns. This change in the land creates the potential for long term erosion through storm events that occur during the life of the project. To prevent long term erosion, permanent erosion and sediment control system need to be developed as an integral part of the projects' designs. The primary goals of this interactive online course are to familiarize Engineers, Architects and Contractors with the design and application of different Best Management Practices (or BMPs for short) in the design of Permanent Erosion and Sediment Control.	2	Intermediate
<b>Designing PEX Plumbing Systems to Optimize Performance and Efficiency</b>	What is PEX and how should you best utilize it in your project? Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide superior reliability, durability and safety. This interactive online course will demonstrate how the properties of PEX tubing can improve the health, safety and welfare of building occupants through reliable long-term delivery of clean water without pipe degradation. Many designers layout PEX plumbing in the same way as copper plumbing systems, without taking advantage of the material flexibility, and increasing installation costs. Other designers use too much pipe, potentially delaying delivery of hot-water to fixtures. Therefore, this course will also explain how PEX systems allow designers to reduce materials, save installation time, and provide faster delivery of hot-water to fixtures by comparing 12 design examples. Finally, using empirical test data generated by NAHB-RC (now Home Innovations Research Labs) comparing various PEX designs, this course will also provide answers about the best ways to design PEX plumbing systems to optimize performance.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Designing Temporary Erosion and Sediment Control Systems</b>	Earthwork activities during construction disrupt natural and man-made ground coverage, creating the potential for erosion hazards and the contamination of natural resources. This interactive online course teaches you about best management practices for temporary erosion and sediment control. You will also learn about common regulations and requirements set in place to minimize significant impact upon the health, safety and welfare of the community.	3	Intermediate
<b>Designing Using LRFD Principles</b>	What is LRFD? LRFD (Load and Resistance Factor Design) principles are used in structural engineering applications so structural reliability is more consistent across various materials and loading conditions. This concept becomes particularly important in performance-based design scenarios when the structural engineering solutions are required to address how the structure is used and expected to perform - and not prescriptive building codes. This interactive, online course will review load factors, resistance factors, and reliability theory. We will also discuss the four material types (wood, steel, concrete, and masonry), looking at how each of these material standards deal with LRFD design.	2	Intermediate
<b>Designing with Structural Composite Lumber</b>	What is structural composite lumber? Is it reliable enough to build with in your area? The building industry is constantly developing new materials. Some of this innovation has occurred in the design of timber construction materials. Many of the new products have higher load carrying ability and improved serviceability when compared to their sawn lumber equivalents. In addition, these material are often more sustainable. This interactive online course will focus on innovations in Structural Composite Lumber (SCL). As a designer, it is critical to understand these materials in order to safely and cost effectively design with them.	1	Fundamental
<b>Developing 3D Engineered Construction Models</b>	The benefits of applying 3D engineered models provides a great economic incentive, improves construction crew safety, reduces craftsmanship errors, and improves the efficiency of construction crews. This interactive online course teaches Contractors, Engineers, Architects and Planners about the core principles for developing 3D engineered models that can be applied by the construction industry through Automated Machine Guidance (AMG).	2	Advanced
<b>Developing an Employee Safety Training Program</b>	People working in facilities, and in industry, need a solid foundation with respect to safety training, and leading people, and employees. So, this course will provide you with that solid foundation that will help you in developing a valid, and detailed, safety training program for your group. This program can then be applied to your organization's specific safety program's requirements for employee training. This course will provide you with information on Emergency Action Plans, Medical Emergency Plans, Lockout/Tagout requirements, Confined Space Entry Procedures, and other critical topics.	1	Fundamental
<b>Developing and Implementing an EPA RMP</b>	Any facilities that manufacture, use, store or otherwise handle certain extremely hazardous chemicals will be subjected to the EPA's Chemical Accident Prevention regulations at 40 CFR part 68. To comply with this regulation, a facility must develop and submit an EPA Risk Management Plan, or RMP, and implement it in the facility. The primary goal of an EPA RMP is to protect communities from the release of toxic or flammable chemicals that are prone to cause immediate, serious harm to public and environmental health. Thus, it is important for the practitioners to have in-depth knowledge on how to develop an EPA Risk Management Plan so it can be applied in their respective facilities. This course will provide the practitioners and participants with an overview of the EPA Risk Management Plan, the history of the RMP Rule, and requirements for compliance with the EPA's 112(r) Risk Management Program rule (40 CFR Part 68). The different program levels of an EPA RMP will be discussed, in addition to steps for developing a Risk Management Plan. The course will also address the differences between OSHA PSM and EPA RMP Program Regulations, different elements of a RMP Plan, and how to conduct a hazard assessment. Details on dispersion modeling and consequence modeling and the selection and application of these models will be covered in this course, as well as risk communication strategies and the requirements for an Emergency Response Program.	2	Fundamental
<b>Developing Performance Goals &amp; Standards: 01-The Value of Planning</b>	Experience the importance of planning and developing goals for your team.	1	Intermediate
<b>Developing Performance Goals &amp; Standards: 02-Creating Performance Standards</b>	Identify and set performance standards that are S.M.A.R.T. (specific, measurable, attainable, results-oriented, and time-framed).	1	Intermediate
<b>Developing Performance Goals &amp; Standards: 03-Your Path to Developing Performance Goals and Standards</b>	Learn and apply the five-step process for setting and discussing team member performance goals.	1	Intermediate
<b>Developing Performance Goals &amp; Standards: 04-Mastering Developing Performance Goals and Standards</b>	Practice Developing Performance Goals and Standards in a full scenario situation.	1	Intermediate
<b>Developing Performance Goals &amp; Standards: 05-Developing Performance Goals and Standards Health Check</b>	Test your ability to apply Developing Performance Goals and Standards concepts in this skills-based scenario assessment.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
Developing Your Leadership Style	Want to know all the details? Prefer to oversee? Like to be involved? Everyone has a different style, whether in dress and music or in leadership. In this course you will learn to identify your personal leadership style and how to incorporate your style into any role through the use of application exercises and a rich multimedia process. Knowing your style will allow you to be more effective in choosing team members, managing up or down, and in getting your own work done.	1	Intermediate
Diagrams: Blueprints	This course is designed to familiarize participants with the basic features of construction blueprints. After completing this course, participants should be able to describe various types of blueprints, identify lines, symbols, and abbreviations that are commonly found in blueprints, and explain how to properly care for blueprints.	2	Intermediate
Digital Multimeters and Troubleshooting	A digital multimeter is a single instrument that is capable of measuring voltage, current, and resistance, so it is useful for troubleshooting electrical circuits and equipment. Voltage measurements can be made between any two arbitrary points in a circuit or relative to a single absolute ground point. Either method can be used to isolate component performance problems within a circuit. Current measurements with a multimeter require incorporating the meter into a circuit, so they are more difficult to make. Voltage and current measurements require that a circuit be energized. Resistance measurements require that the power be off and the tested component isolated from the rest of the circuit.	0.5	Intermediate
Digital Transformation: Benefits of a Digital Corporate Culture	When we talk about digital transformation, we usually think about the adoption of modern devices, changes in corporate processes, or the development of a new business model. However, we don't usually think about how the workforce will respond. Regardless of what industry the organization operates in, or what the current culture looks like, having a digital corporate culture can benefit an organization. This course will highlight some of these benefits.	0.2	Intermediate
Digital Transformation: Challenges Organizations Face by Not Embracing Technology	Some organizations view digital transformation as costly, unnecessary, time-consuming, and not worth the investment. Others admit to not being able to grasp the complexity of the technology. While these concerns are understandable, not embracing digital tools can create challenges for organizations. This course will highlight and discuss several of these challenges.	0.2	Intermediate
Digital Transformation: Five Ways a Digital Transformation will Alter Day-to-Day Operations	When integrating digital technology into a business infrastructure, it's important to understand how it will redefine the organization from the inside out. A digital transformation is disruptive. The shockwaves it sends throughout the organization will be felt by executives, employees, business partners, customers, clients, and potentially the public at large. To better understand what changes an organization may face, this course will discuss five ways a digital transition will alter day-to-day operations.	0.2	Intermediate
Digital Transformation: Four Areas to Consider When Evaluating a Digital Transformation	Digital transformation may mean rethinking things from the ground up and implementing digital technology where necessary. This might require a careful analysis of all areas to determine what systems will improve productivity and fuel corporate growth. To get started, here are four areas that organizations should consider: <ul style="list-style-type: none"> <li>· Communication</li> <li>· Productivity</li> <li>· Marketing</li> <li>· Security</li> </ul>	0.2	Intermediate
Digital Transformation: Four Steps to Implementing a Digital Transition	Digital transformation causes a paradigm shift in every segment of the organization. Both internal and external factors from the transition will disrupt business operations, processes, and employee workflow. To have a smooth transition it's important to create a roadmap for a digital transition that follows the four high-level steps outlined in this course.	0.2	Intermediate
Digital Transformation: Things to Consider Before Making Changes	All organizations need a digital transformation strategy. However, don't fall into the trap of thinking that this is accomplished by simply adding more technology. Before creating a strategy, it's important to consider the impact the transition will make both inside and outside the organization. This course will discuss four things to do before making changes.	0.2	Intermediate
Digital Transformation: What is Big Data?	Big Data refers to the huge amount of information available that can be analyzed by computers in order to identify patterns and get meaning that might be too complex for traditional methods. In this course you'll learn what this means for businesses and how Big Data is already transforming different industries.	0.2	Intermediate
Digital Transformation: What is Blockchain?	Bitcoin, Ethereum and other cryptocurrencies made headlines in 2017 and 2018 and began disrupting commerce, finance, and currency in a variety of ways. The technology behind cryptocurrency is known as blockchain, and it has created fresh opportunities for businesses and financial institutions around the world. In this course you will learn about how blockchain works, why it's gaining popularity, and how it's being used in organizations today.	0.2	Intermediate
Digital Transformation: What is Digital Transformation?	Changes in technology continue to shape our day-to-day lives and alter the way we interact with the world around us. Changing technology has also prompted - and sometimes forced - organizations to restructure the way their business operates. These changes made by organizations to integrate developing digital processes is known as Digital Transformation. In this course, you'll learn more about what Digital Transformation is, and how it's impacting almost every organization.	0.2	Intermediate
Digital Transformation: What is the Internet of Things?	We live in a connected world where devices can connect to the internet and send information to people, devices and systems. This network of connected things is known as The Internet of Things or IoT. In this course you will learn how the Internet of Things is evolving and explore the different areas where IoT is having the biggest impact.	0.2	Intermediate
Direct and Alternating Current	Most electric power is generated and consumed in the form of alternating current (AC), and most meters that measure energy consumption are designed to measure AC power. Many of the principles associated with direct current (DC) circuits also apply to AC circuits. This course describes variations that account for differences between DC power and AC power.	1	Intermediate
Disabilities in the Workplace	A disability is defined as a physical or mental impairment that substantially limits one or more of a person's major life activities. Employers often struggle with how to respond and cope with workers with disabilities, but learning the basics about etiquette, as well as rights and responsibilities as outlined by the American Disabilities Act, or ADA, can make the situation better for everyone. This course describes the ADA, the benefits of hiring workers with disabilities, types of disabilities, reasonable accommodations, interviewing and etiquette, as well as how to prevent and deal with discrimination.	0.5	Intermediate



# AEC Complete

Title	Description	Hours	Level
<b>Discipline</b>	Discipline is a course that provides participants with guidelines for preventing discipline problems and presents some techniques for dealing effectively with discipline problems when they arise. After completing this course, participants should be able to describe ways in which supervisors affect discipline in the workplace, reasons why discipline problems occur, ways of preventing discipline problems, ways of handling discipline problems once they arise, and the basic steps for using positive discipline and progressive discipline. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Discrimination in the Workplace</b>	100,000 charges of workplace discrimination are filed every year. Workplace discrimination is the unfair or illegal treatment of a person based on their race, color, religion, sex, national origin, age, or disability. Discrimination amongst employees can contribute to a hostile work environment and negative company culture, leading to lower efficiency and high employee turnover. This course raises awareness by discussing the civil rights laws protecting people from discrimination, the types of discrimination, and how discrimination can affect the workplace.	0.25	Intermediate
<b>Discrimination Prevention</b>	Discrimination is a big deal. Regardless if you are the one being discriminated against, the one doing the discriminating, or if you are seeing it happen around you, discrimination is real and it can be a serious problem. In 'Dealing with Discrimination in the Workplace' you will learn the steps to 1) help you recognize when discrimination is occurring, 2) identify how to acknowledge the situation, and then 3) know how to proceed to eliminate the problem. Through the use of application exercises and a rich multimedia process, you will gain the skills you need to truly identify, address, and deal with discrimination.	0.5	Intermediate
<b>Distillation: Control Systems</b>	What are the goals of a distillation system? Simply put, they are to maintain an optimum production rate and to meet specifications that are set for its products. In this interactive, online course, you will examine various factors that must be controlled if a distillation system is to meet its goals, and you will see how control systems provide the control that's needed. During operation, different balances must be maintained and you must understand process temperatures, how they can affect the distillation process, and how they can be controlled. The final component is product composition; you will discover how the compositions of a distillation system's products are controlled.	0.5	Intermediate
<b>Diversity in the Workplace</b>	Diversity is acknowledging, accepting, and respecting differences among people. These differences can include age, class, race, and gender. Companies can increase their creativity and openness to different ideas by building and encouraging a diverse workforce. This course covers the definition and benefits of diversity, the challenges in a diverse workplace, and how employees can be proactive and positive on a daily basis to promote the differences between workers.	0.25	Intermediate
<b>Don Wilson's Court Decisions: Block 1 - Surveying Definitions; Overlapping Titles &amp; Descriptions</b>	Court Decisions- Block 1: Surveying - Definitions; Overlapping Titles & DescriptionsThis 2-hour online interactive course presents four court decisions covering basic issues of surveying including defining what a survey is and dealing with overlapping descriptions. Principles of retracement, original survey, senior-junior conveyancing, apportionment and historical title analysis are discussed and illustrated.Court Cases included are: Kerr v. Fee, 161 N.W. 545, 179 Iowa 545 (1917) Rivers v. Lozeau, 539 So.2d 1147 (Florida, 1989) Hughes v. Yates, 228 Ark. 860 (1958) Parkman v. Ludlum, 69 So.2d 434 (Alabama, 1953) There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 2 - Description Interpretation</b>	Court Decisions- Block 2: Description InterpretationThis 2-hour interactive online course presents five court decisions covering principles of interpretation and construction to be applied to land descriptions. The significance of original land descriptions, ambiguity, references, meanings of words and phrases, and official plats are covered. Some of the court cases included are Harvey v. Inhabitants of Sandwich, 152 N.E. 625, 256 Mass. 379 (1926), Wilson v. DeGenaro, 415 A.2d 1334 (Conn., 1979), Perry v. Buswell, 113 Me. 399 (Maine, 1915), Cragin v. Powell, 128 U.S. 691 (Louisiana, 1888) and Peacher v. Strauss, 47 Miss. 353 (1872).There will be a test included at the end of each scenario. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 3 - Rules of Construction for Interpreting Descriptions</b>	This 2-hour interactive online course deals with some of the basic rules of construction for interpreting land descriptions and resolving ambiguities therein. The intent of the parties is the primary requirement, which must be determined from the language of the description viewed in light of the surrounding circumstances at the time. This course includes the following decisions:Case 1 City of North Mankato v. Carlstrom; 212 Minn. 32 (1942) Case 2 People v. Call; 223 N.Y. Supp. 257 (1927)Case 3 Smith v. Smith; 622 A.2d 642 (Del., 1993)Case 4 Smart v. Huckins; 82 N.H. 342 (1926)There is a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Don Wilson's Court Decisions: Block 4 - Surveying Procedures</b>	Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose, and what are their limitations and applications. This 2-hour online course presents four court decisions dealing with basic surveying procedures for land parcels. Topics discussed are property line location, evidence, lost & obliterated corners, legal principles and the resolution of particular problems. The four cases covered are: Myrick v. Peet, 180 P. 574 (Mont., 1919) Hagerman v. Thompson, 235 P.2d 750 (Wyo., 1951) Seaman v. Hodgboom and others, 21 Barb. 398 (New York, 1855) U.S. v. Doyle, 468 F.2d 633 (Colo., 1972)Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

## AEC Complete

Title	Description	Hours	Level
<b>Don Wilson's Court Decisions: Block 5 - Boundary Retracement 1</b>	<p>Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose, and what are their limitations and applications. This 3-hour interactive online course is the first of three parts discussing the basics of boundary retracement. Discussion centers around following ancient boundaries, stressing the use, and correction of magnetic bearings. Seven court cases are presented:            Beckley v. Bryan and Ransdale, 1 Ky (Ky. Dec.) 91 (1801)            Bryan, &amp;c. v. Beckley, 16 Ky (Litt Sel Cas) 91 (1809)            Finnie v. Clay, 5 Ky (2 Bibb) 351 (1811)            Vance v. Marshall, 6 Ky (3 Bibb) 148 (1813)            M'Nairy v. Hightour, 2 Overton 302 (Tenn., 1814)            Bradford v. Pitts, 2 Mills. Const. Rep. 115 (South Carolina, 1818)            Johnson v. M'Millan, 1 Strobe Law 143 (S. C., 1846)</p> <p>There is a test at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Advanced
<b>Don Wilson's Court Decisions: Block 6 - Boundary Retracement 2</b>	<p>This 3-hour interactive online course is the second of three parts and includes seven significant cases in the area of boundary retracement. Basic procedures are outlined by the courts in these decisions. This course includes some of the most complete and well-founded decisions outlining rules for boundary retracement and the reasons behind them. The seven court cases presented are:            Cherry v. Slade's Administrator, 3 Murph (N.C.) 82 (1819)            Riley, Administratrix, &amp;c v. Griffin, et al, 16 Ga. 141 (1854)            Stewart v. Carleton, 31 Mich. 270 (1875)            Diehl v. Zanger, 39 Mich. 601 (1878)            Wells v. Lagorio et al., 112 Va. 522 (1911)            Taylor v. Higgins Oil &amp; Fuel Co., Tex.Civ.App., 2 S.W.2d 288 (1928)            Greer v. Hayes, 216 N.C. 396 (1939)</p> <p>Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	3	Advanced
<b>Don Wilson's Court Decisions: Block 7 - Boundary Retracement 3</b>	<p>Court decisions provide basic principles and guidelines, but in order to apply them, it is first necessary to understand how they arose and their limitations and applications. This interactive online course is the third installment of the three-part retracement cases. It covers basic principles of boundary retracement along with the use of several types of evidence, such as survey data and original field notes. This course presents four relatively recent, later cases on boundary retracement. Several stress the importance of, and the reasoning behind, strict following of original boundaries. The cases covered are:            Case 1 Stafford v. King, 30 Tex. 257 (1867)            Case 2 Hart v. Gries, 155 S.W.2d 997 (Texas, 1941)            Case 3 Sellman v. Schaaf, 269 N.E.2d 60 (Ohio, 1971)            Case 4 U.S. v. Champion Papers, 361 F. Supp. 141 (D.C. Texas, 1973)</p>	3	Advanced
<b>DOT Alcohol and Drug Testing for Drivers</b>	<p>Employees of DOT-regulated employers who perform or could perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes over 12 million workers employed as airline pilots, bus drivers, commercial truck drivers, crew members on cargo ships, train engineers, and many others. Employers are required to implement a Drug and Alcohol Program and provide clear explanations of company policies and DOT testing regulations. They must also employ a Designated Employee Representative (DER) to administer the program, receive test results, remove employees from safety-sensitive duties when required, and answer questions about the program and testing process.</p>	0.75	Intermediate
<b>DOT CSA Awareness</b>	<p>The FMCSA implemented the Compliance, Safety, and Accountability (CSA) program to improve the safety of commercial motor vehicles on public roadways. This program uses performance and compliance data from roadside inspections, State-reported CMV crash records, carrier safety investigations, and carrier DOT registrations to focus FMCSA resources on the carriers who pose the greatest safety risk. Through compliance, the CSA program allows carriers and drivers to rectify safety concerns before crashes, injuries, or fatalities occur.</p>	0.75	Intermediate
<b>DOT ERG Introduction</b>	<p>The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.</p>	0.25	Intermediate
<b>DOT HAZMAT - Safety Training</b>	<p>Over 4 billion tons of hazardous materials are transported in the U.S. every year. Due to their inherent risks to life, property, and the environment, the U.S. DOT established the Hazardous Materials Regulations (HMR) to cover the classification, labeling, packaging, and handling of hazardous materials. They also regulate hazmat training, incident reporting, hazard communication, and security. This course describes existing regulations for the transport of hazardous materials in commerce in the U.S., including the Hazardous Materials Table (HMT).</p>	0.5	Intermediate
<b>DOT Hours of Service Compliance</b>	<p>The goal of the FMCSA Hours of Service (HOS) regulations is to improve public safety by keeping fatigued commercial motor vehicle drivers off the roads. These regulations apply to motor carriers and CMV drivers who engage in interstate commerce, and they are designed to ensure that drivers have enough time off to get the rest they need on a daily and weekly basis. The HOS rules are necessary because people are not good at judging their own drowsiness. They have been revised several times as our understanding of fatigue improves.</p>	0.75	Intermediate
<b>DOT Reasonable Suspicion Supervisor Training - Alcohol</b>	<p>Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employee's appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of alcohol misuse. This course describes the purpose of DOT testing regulations, defines reasonable suspicion, lists the signs and symptoms of alcohol use, and describes best practices for conducting reasonable suspicion interviews and alcohol testing.</p>	1	Intermediate

# AEC Complete

Title	Description	Hours	Level
DOT Reasonable Suspicion Supervisor Training - Drugs	Transportation employees of DOT-regulated employers who perform tasks that have been defined as safety-sensitive are subject to drug and alcohol testing. This includes reasonable suspicion testing, which is required when a properly trained supervisor suspects that an employee is under the influence of alcohol or illegal drugs based on the employees appearance, behavior, speech, or smell. Supervisors and company officials who may need to make a reasonable suspicion test determination are required to complete at least 1 hour of training on the signs and symptoms of DOT-prohibited drug use. This course describes the five DOT-regulated drug classes, including their signs and symptoms of use, the types of observations that can be used for reasonable suspicion drug test determinations, and what happens during a reasonable suspicion interview, specimen collection, and drug testing.	1	Intermediate
DOT Roadside Inspections	Specially trained inspectors use procedures and criteria from the CVSAs North American Standard Inspection Program to conduct roadside inspections of CMVs and CMV drivers in the U.S., Canada, and Mexico. This program identifies the critical inspection items and unsafe conditions that can place vehicles or drivers Out-of-Service, and it ensures a uniform and reciprocal inspection and enforcement process in North America. This course details the roadside inspection process and eight inspection levels, lists the violations that can place a driver or vehicle Out-of-Service, and give some tips on avoiding and surviving inspections.	0.25	Intermediate
Downcycle, Upcycle, Precycle, and Recycle: Waste Prevention and Reuse	This interactive webcast explores the concepts of downcycling, upcycling, precycling, and recycling. In an era of resource conservation, the idea of reuse is paramount to meeting sustainability goals. We will introduce green-minded professionals to the concepts of downcycling (reclaiming), upcycling (refashioning), precycling (reducing waste), and recycling (reuse). We will focus on the environmental, economic, and social benefits of these four types of waste prevention. In addition, we will look at the relationship between waste reuse and technological advancement. Lastly, we will explore case studies of cutting edge waste reuse and reduction.	2	Fundamental
Drawing Shortcuts - Digital Drawing Tools	In recent years, architects and their clients have begun to rediscover the benefits of using traditional imaging techniques such as sketching, drawing, and physical modeling to communicate their design concepts. As digital imaging and 3-D visualization have become ever more sophisticated (and complicated), many small offices have been forced to make expensive investments in time and software in order to remain current with the quickly evolving technology. Now, there is a new trend in visual communication that combines the best hand-drawing techniques, advanced reprographics, digital imaging, photography, and computer-generated information. In this course we will take a brief glimpse into the wonderful possibilities of using digital and traditional visualization techniques. Some examples are quick and easy to create, while others are very time-consuming and complicated. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Drawing Compositions	To take a photograph of a street scene, you would not simply point and shoot; you would first determine your subject and decide how to frame your image. Until you look through a viewfinder or at the LCD screen of a digital camera—or even your cell phone—your visual reference changes continuously as you look around. But the moment you focus the camera on your subject, you begin making rapid decisions about the composition of your photograph and answering a series of questions, such as: How close should I be to my subject? or Should I take a horizontal or vertical photo? In this course we will cover drawing considerations, views, and methods that will help you in answering those questions and more. John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Tradigital Drawing	In recent years, architects and their clients have begun to discover the benefits of using traditional imaging techniques along with digital imaging and 3-D visualization. This discovery has spawned the term Tradigital. What does Tradigital mean? How does it affect you? In this course we will answer these questions and outline the steps for merging traditional and digital imagery styles. We will look at four different methods and how you can implement them into your design. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Coloring Tools	A black-and-white drawing is often all you need to communicate a design idea, but black-and-white has limitations. Imagine trying to portray autumn foliage on a tree with a black-and-white drawing, or trying to sketch a field of wildflowers in shades of gray! Adding color to your drawings can help you define different materials and objects and also give life to the image. Sometimes you can create a drawing in black-and-white, present the idea, and add color to it at a later time. We'll use some examples to show you that process and we'll recommend the tools you can use to achieve your desired results. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Drawing Tools	This course covers the basic how-tos of drawing in black and white with traditional products as well as how to create different effects using various techniques. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Drawing Types	This course identifies the basic varieties of traditional drawing, which range from simple sketches to sophisticated presentation renderings. In this course, you will learn how to construct various types of drawings. For each type of drawing, you will learn when to use it, its characteristics, (e.g., size, detail), and the process for developing each. By breaking the drawing process down into a series of small but strategic choices, you will build confidence in your visualization skills and overcome the fear of drawing that so many designers experience. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drawing Shortcuts - Traditional Entourage Drawing	Illustrating people, plants, trees, furniture, automobiles, graphics, and various entourage elements can be among the most challenging aspects of creating drawings. This course discusses sources that can be used to copy these elements, and also offers specific advice for drawing people, cars, and vegetation. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2010 All rights reserved.	1	Fundamental
Drinking Water Quality - Monitoring & Security	It's understood that drinking water should be suitable for human consumption and for all usual domestic purposes. So, what is suitable drinking water? Ideally, drinking water should not contain any microorganisms known to be pathogenic or capable of causing diseases. It should be free from chemical contamination, and it should have the right physical properties. In this interactive, online course, we will discuss key information regarding drinking water monitoring and security required to ensure the health, safety, and welfare of the general population being served by water supply facilities. We will discuss the minimum parameters recommended for monitoring drinking water, and the surveillance process and products used for monitoring water quality. We will also discuss the types of threats to facilities, and types of physical security elements that may be put into place to help protect these facilities.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Drinking Water Quality - Water Treatment Technology</b>	Safe drinking water supplies are crucial to the health, safety, and welfare of society. In this interactive, online course, we will discuss key information regarding water treatment technology of drinking water, including characteristics and capabilities of water treatment processes, source water quality, distribution system considerations, and residuals management. Technical personnel in the design, engineering, maintenance and operations areas of facilities will find this information critical to the successful operation of drinking water related facilities. This course addresses critical factors that affect health, safety and welfare of the population being served by the water treatment system.	1	Fundamental
<b>Driven Piles: Introduction to Static Analysis Methods</b>	Driven piles are a dependable and cost effective deep foundation solution to maintain the integrity of structures. Produced as long columns of steel, timber, or concrete, they provide additional support to structures on land and over water, especially during natural disasters such as floods and hurricanes. Testing of installed piles can determine the load carrying capabilities of the pile, ensuring the strength and stability of the foundation before construction begins. This 1-hour interactive online course is the third of a series of courses on driven piles. This course covers an introduction to static analysis methods, including basics of static analysis, events during and after pile driving, load transfer, effective overburden pressure, selection of design soil strength parameters and factors of safety. Other courses cover design of single piles and design of pile groups. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
<b>Driven Piles: Pile Type and Selection</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. This 2-hour interactive online course covers the many different types of piles available and explains the appropriate conditions for each type of pile. There is also a section covering the different types of degradation and how each pile substance might respond to these difficult environmental circumstances. The information is provided to help designers choose the best pile type for any given project. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driven Piles: Static Analysis - Pile Groups</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base which can be used in different types of foundations. This 3-hour online course is the fifth course in a series on pile design. This course reviews static analysis of driven pile groups, including bearing capacity analysis of pile groups in cohesionless soils, cohesive soils and layered soils. The course material covers analysis of uplift capacity and lateral capacity, special design considerations such as downdrag, lateral squeeze of foundation soil, bearing capacity of piles in soils subject to scour, and soil and pile heave. This course also addresses additional design considerations including time effects on pile capacity, effects of construction techniques, plugging of open pile sections, and pile driveability. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Static Analysis - Single Piles</b>	Driven piles are pre-manufactured fortifications used to ensure the strength of a structure's base that can be used in different types of foundations. This 3-hour interactive online course is the fourth course in a series on pile design, covering static analysis of single driven piles. This course reviews bearing capacity analysis of single piles in cohesionless soils, in cohesive soils, in layered soils and on rock. Analysis of uplift capacity and lateral capacity is also reviewed. To successfully complete this course, it is necessary to have an understanding of the materials covered in earlier courses on driven piles, including Driven Piles - Subsurface Exploration and Testing, and Driven Piles - Introduction to Static Analysis. This course is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Driven Piles: Subsurface Exploration and Testing</b>	Driven piles are a total engineering solution. The design, installation and quality assurance that are a part of each driven pile combine to eliminate guesswork and produce a known, reliable and cost effective product that can accommodate a wide variety of subsurface conditions. Driven piles easily adapt to variable site conditions to achieve uniform minimum capacity with high reliability, thus eliminating uncertainty due to site variability. This 2-hour interactive online course covers the subjects of subsurface exploration, in-situ testing and laboratory testing. It is based on guidance provided by the Federal Highway Administration. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Driving Hazard Recognition</b>	Safe drivers recognize potential hazards and stay out of harm's way. With our Driving Hazard Recognition course, you'll learn techniques for negotiating intersections and blind spots as well as avoiding erratic drivers, pedestrians, animals, and parked vehicles. You'll also learn about driving with limited visibility and in slippery conditions. Paying extra attention to common driving hazards can help ensure that your passengers and cargo return home safely.	0.25	Intermediate
<b>Driving Large Vehicles and Heavy Equipment</b>	Vehicles on public roadways come in many different shapes and sizes. Most passenger vehicles - cars, vans, SUVs, and pickup trucks - have similar configurations and controls, and drivers of these vehicles understand their capabilities and limitations. However, drivers of large trucks and heavy equipment must use extra caution in order to safely navigate and share the roads with smaller vehicles. This course covers some of the things that must be considered when driving large vehicles or operating heavy equipment in order to ensure the safety of operators and people who are nearby. Topics covered include blind spot awareness, how to safely back up, dealing with inclement weather and poor road conditions, construction and work zone considerations, and minimizing in-cab distractions.	0.25	Intermediate
<b>Driving Preparation</b>	Be prepared for any trip with our Driving Preparation training that provides the basics of vehicle maintenance and inspection as well as suggestions for planning your route. Our course also suggests some valuable emergency supplies that can help prevent a minor inconvenience from becoming a major problem, such as common tools, spare tire, jumper cables and more. In addition to saving time and other costs, proper driving preparation can ultimately save your life as well as the lives of other drivers, passengers, and pedestrians around you.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
Ductile Iron Pipe	Ductile iron pipe is used for many applications, primarily for potable water lines and sanitary sewage pumping stations, but also for drainage systems. The qualities of ductile iron make it superior to other available products. Along with its predecessor, gray cast iron, it has a very long history of use, particularly compared to many other available products. This 2-hour interactive on-line course discusses the characteristics of ductile iron pipe, the advantages of this type of pipe and the design criteria for proper selection of pressure class. It also briefly discusses joint types available and their applications and the old system of classification for ductile iron (such as Class 52). The material is taken from the Ductile Iron Pipe Research Association. There will be a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Easements: Part 1, Basic Elements	This 3- hour interactive online course is Part 1 of a three-part series covering easements and reversion rights. This course deals with the basic elements of easements and rights in land, particularly those interest which are less than absolute, or fee simple, ownership. This course includes a multiple-choice quiz at the end of each section. Part 2 deals with rights-of-way, and discusses several types. Part 3 covers reversion rights that occur when an easement is terminated. In order to have a full understanding of the existence of easements and their resulting reversion rights, the three parts of the course should be taken in sequence. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
Easements: Part 2, Roads & Highways	This 2-hour online course contains information on the creation, alteration and termination of public highways and other types of roads. This is Part 2 of a three-part course concerning Easements & Reversion Rights. As Part 1 contains introductory information, including terminology, it is important to complete Part 1 before beginning Part 2. Part 3 contains the action of reversion as a result of easement termination and focuses on roads and streets. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Easements: Part 3, Reversion Rights	This 3-hour online course contains the elements of reversion and the results when reversion takes place. It also includes diagrams of the methods for the division of vacated streets. This is Part 3 of a three-part course series offered on RedVector.com concerning Easements & Reversion Rights. In order to have a full understanding of the existence of easements and their resulting reversion rights, the three parts of the course should be completed in sequence. Part I deals with the basic elements of easements and rights in land. Part II deals with several types of rights-of way. Part III covers reversion rights that occur when an easement is terminated. This course includes a multiple-choice quiz at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
Effective Delegation	LearnSmart's Video Training Course for Effective Delegation was developed to teach people that delegation is more than just clearing off your desk by assigning tasks to others. Not only does delegation entail teaching others the skills necessary to accomplish certain tasks, but it also serves as an opportunity to foster employees in their career training. The course shows the importance of delegating not just tasks, but also the authority necessary to complete them.	3	Intermediate
Effective Delegation: 01-What to Delegate	Learn and apply the delegation process to determine which tasks to delegate to team members (and to whom to assign each task).	1	Intermediate
Effective Delegation: 02-Issues in Delegating	See and practice the issues that arise in delegation discussions and how to effectively handle them.	1	Intermediate
Effective Delegation: 03-Your Path to Delegating	Learn and apply the five-step process for delegating tasks to members of your team.	1	Intermediate
Effective Delegation: 04-Mastering Delegating	Practice Delegating in a full scenario situation.	1	Intermediate
Effective Delegation: 05-Delegating Health Check	Test your ability to apply Delegating concepts in this skills-based scenario assessment.	1	Intermediate
Effective Discipline: 01-Taking Disciplinary Action	See and rate examples of disciplinary action and understand the importance of designing messages for the team member.	1	Intermediate
Effective Discipline: 02-The Disciplinary Process and Documentation	Learn the standard procedure for disciplining team members and practice focusing on team member behaviors in documentation.	1	Intermediate
Effective Discipline: 03-Responding to Team Member Reactions	Since team members often react negatively to discipline, practice how you will respond in these situations.	1	Intermediate
Effective Discipline: 04-Your Path to Effective Discipline	Learn and apply the five-step process for effectively disciplining a team member.	1	Intermediate
Effective Discipline: 05-Mastering Effective Discipline	Practice Effective Discipline in a full scenario situation.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Effective Discipline: 06-Effective Discipline Health Check</b>	Test your ability to apply Effective Discipline concepts in this skills-based scenario assessment.	1	Intermediate
<b>Effective Groundwater Supply Management</b>	Effective Groundwater Supply Management is essential if groundwater resources are to remain viable for the foreseeable future. Groundwater Management is a rapidly evolving discipline that is incorporating ever more factors into the evaluation of principles that will ensure that no harmful effects arise from the utilization of this resource while ensuring that all potential resources that can be maintained are used to satisfy an ever-increasing demand. This interactive online course will present a history of Groundwater Management from its beginnings in the middle of the last century through the present day. Current parameters and environmental factors of concern will be outlined.	1	Advanced
<b>Effective Presentation Skills</b>	In LearnSmart's Effective Presentations video training, you will learn how to clearly convey your intended message, while overcoming fear and anxiety. You are provided with an essential overview to successful public speaking. This training highlights the skills needed to make presentations, and the necessary changes involved in presentations to blend personality with clear communication. The video will focus on the following topics: dealing with fears and anxieties, elements of a presentation, nonverbal communication, and how to prepare for a presentation.	1	Intermediate
<b>Efficient Pump Operation</b>	This course is designed to teach participants how pumps in generating units can be operated efficiently. After completing this course, participants should be familiar with pump operating characteristics such as capacity, head, power, efficiency, and minimum net positive suction head. They should understand how these characteristics can be plotted and read on pump curves, and how pump curves can be used. In addition, they should be able to describe the effects of multiple pump operation and low flow on pump efficiency.	1	Intermediate
<b>EHS Regulatory Overview</b>	Violating Environmental, Health and Safety regulations can result in fines and even the closure of your business. This interactive online course will teach you the major regulations for general industry as it pertains to Environmental, Health and Safety. You will learn how to determine which regulations are relevant to your companies and/or industry. You will also learn what your organization can do to maintain regulatory compliance with EHS regulations.	1	Intermediate
<b>Electric Motors</b>	Electric motors are used in all facets of daily life from electric generators, refrigerators, air conditioners, to the electric fan in computers. This interactive online course teaches you about electric induction motors. It covers how a motor works, the types of electric motors available, and how to apply an electric induction motor. This course looks at the relationship between motor speed, slip, and torque, and covers how to select a motor with the correct parameters for a particular load. Finally, all of the basic data on a motor nameplate is reviewed and explained.	1	Fundamental
<b>Electric Pallet Jack Safety</b>	Electric pallet jacks are useful tools designed for horizontal transport of palletized materials. More advantageous than manual pallet jacks, electric pallet jacks can move larger loads through tight spaces while allowing the operator to easily start and stop the vehicle. It is important to know how to safely operate electric pallet jacks. This course discusses pre-operation inspections, load preparation, PPE, and proper operating procedures.	0.5	Intermediate
<b>Electric Power Substations</b>	This webcast covers basic information regarding electric power substations and the distribution of electric power, including components of power substations, individual equipment components, and electric power distribution systems. General information related to operational aspects of substations and distributing electric power is included.	1	Fundamental
<b>Electric Shock</b>	Electrical appliances and machinery are found in virtually every home and workplace. While they are common and convenient, they can also be quite dangerous. Thousands of people are shocked every year. An average of 60 people die each year from electric shock from small appliances, power tools, and lighting equipment. Knowing how to reduce the risk of electric shock, as well as how to respond should an injury occur, is essential for everyone.	0.5	Intermediate
<b>Electrical 1: Cable Tray</b>	Cable Tray is a course designed to familiarize participants with cable tray components and installation techniques. After completing this course, participants should be able to identify the types of sections and the types of fittings used in cable tray assemblies, explain how cable tray is supported, and explain how cable tray sections are spliced. They should also be able to size cable tray for specific numbers and types of conductors.	2	Intermediate
<b>Electrical 1: Commercial and Industrial Wiring</b>	This course is designed to familiarize participants with wiring devices and wiring techniques used at commercial and industrial sites. After completing this course, participants should be able to identify various types of switches, enclosures, control devices, and receptacles. They should also be able to describe basic techniques for planning and installing branch circuits, mounting boxes, and working with conductors.	2	Intermediate
<b>Electrical 1: Electrical Diagrams</b>	This course is designed to familiarize participants with various types of electrical diagrams. After completing this course, participants should be able to explain why symbols are used on electrical diagrams, and how to obtain information from a title block and an equipment location index. They should also be able to explain how to use each of the following types of diagrams: block, single line, schematic, wiring, connection, interconnection, and raceway.	2	Intermediate
<b>Electrical 1: Electrical Safety</b>	The purpose of this course is to give participants a general understanding of basic principles of electricity and electrical safety. At the conclusion of this course, participants will have a basic understanding of various aspects of working safely around electrical equipment.	2	Intermediate
<b>Electrical 2: Boxes and Fittings</b>	Boxes and Fittings is a course designed to familiarize participants with various types of boxes and fittings used in electrical installations. After completing this course, participants should be able to identify different types of boxes and explain how to properly size outlet boxes, pull boxes, and junction boxes. They should also be able to identify different types of couplings, locknuts, and bushings, and explain what seal-off fittings are and how they are installed. In addition, they should be able to describe the three classes of hazardous locations that are identified in the National Electrical Code® (NEC®) and describe requirements for safely installing boxes and fittings in hazardous locations.	2	Intermediate
<b>Electrical 2: Circuit Breakers and Fuses</b>	Circuit Breakers and Fuses is a course designed to familiarize participants with the use of overcurrent protective devices in electrical installations. After completing this course, participants should be able to describe hazards associated with faults and overloads, describe the operation and common types of circuit breakers and fuses, and describe basic procedures for troubleshooting problems with circuit breakers and fuses.	2	Intermediate

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Title	Description	Hours	Level
Electrical 2: Electrical Lighting	Electric Lighting is a course designed to familiarize participants with various types of lamps and lighting fixtures and how install them. After completing this course, participants should be able to explain how the human eye sees and describe the characteristics of light. They should also be able to compare and contrast various types of lamps, and they should be able to explain how to install various types of light fixtures.	2	Intermediate
Electrical 2: Grounding	Grounding is a course designed to familiarize participants with both system grounding and equipment grounding. After completing this course, participants should be able to describe different types of grounding, describe National Electrical Code® (NEC®) requirements associated with system grounding, and describe how to size and install grounding electrode conductors. They should also be able to describe NEC requirements associated with equipment grounding, describe how to size equipment grounding conductors and bonding jumpers, and explain how to make sure that a grounding system is effective.	2	Intermediate
Electrical 2: Installation of Electrical Services	Installation of Electric Services is a course designed to familiarize participants with considerations associated with installing a commercial or industrial electric service. After completing this course, participants should be able to describe various types of electric services for commercial and industrial installations, and they should be able to identify and describe the main components of those services. They should also be able to explain how to select and install equipment for a single-phase service and a three-phase service.	2	Intermediate
Electrical 2: Motors: Theory and Application	This course is designed to familiarize participants with the operation and use of various types of electric motors. After completing this course, participants should be able to describe the basic construction and operation of direct current (DC) motors, alternating current (AC) induction motors, and AC synchronous motors. They should also be able to explain how motor speed can be controlled and how motors and motor circuits can be protected from damage, and they should be able to interpret the information on a motor nameplate.	2	Intermediate
Electrical Drawings and Schematics	This course discusses recognizing electronic symbols, integrated circuits, and logic symbols. It also covers electronic schematics and the difference between logic and digital diagrams.	0.25	Intermediate
Electrical Equipment: AC and DC Motors	This course is designed to familiarize participants with basic concepts associated with the operation of electric motors. After completing this course, participants should be able to explain the basic principles of motor operation and describe the basic operation of a simple alternating current (AC) motor and a simple direct current (DC) motor. They should also be able to identify the parts of a typical AC motor and a typical DC motor, and describe the function of each part.	2	Intermediate
Electrical Equipment: Electrical Production and Distribution	This course is designed to familiarize participants with basic concepts associated with the production and distribution of electric power for use by process systems. After completing this course, participants should be able to explain, in general terms, how off-site power comes into a plant and how a plant can generate power on site for its own use. They should also be able to identify and explain the functions of the major components in an electrical distribution system. In addition, participants should be able to describe general hazards associated with these systems and explain how the possible effects of the hazards can be minimized.	2	Intermediate
Electrical Equipment: Motor Controllers and Operation	This course is designed to familiarize participants with basic concepts associated with what motor controllers do and how they do it. Typical steps for starting up, checking, and shutting down motors are also covered. After completing this course, participants should be able to explain how motor controllers control and protect motors. They should also be able to describe how to start up a motor, perform operating checks on a motor, and shut down a motor.	2	Intermediate
Electrical Fire Alarm Systems	This course presents key information regarding electric fire alarm systems. Fire alarm systems are of critical importance for several types of facilities, and are mandated for specific facilities by regulatory and government agencies. We will cover system fundamentals, and the various types of systems available and in use today - specifically, voice and alarm communications, automatic alarm signals, controls and signal initiation, transmission and notification.	1	Fundamental
Electrical Installations 1: Electrical Laws, Components and Circuits	The use of electricity, especially at common line voltages, is inherently dangerous. When used haphazardly, electricity can lead to electrocution or fire. This danger is what led to the development of the National Electrical Code® (NEC®), and it is what keeps Underwriter's Laboratories in business. The first real requirement of the NEC is that all work must be done 'in a neat and workmanlike manner.' This means that the installer must be alert, concerned, and well informed. It is critical that you, as the installer of potentially dangerous equipment, maintain a concern for the people who will be operating the systems you install. This 1-hour interactive online course covers the basic rules of electricity and electronics. It contains enough detail to help you through almost any difficulty that faces you, short of playing electronic design engineer. It will also serve you well as a review text from time to time.	1	Fundamental
Electrical Maintenance: Battery Systems	This course is designed to introduce participants to industrial battery systems, battery cells, and how to inspect and test batteries. After completing this course, participants should know the characteristics and basic operation of a typical battery system and its components. They should also understand how to inspect and perform basic tests on industrial batteries.	2	Intermediate
Electrical Maintenance: Fasteners	This course is designed to familiarize participants with various types of fasteners used in electrical work. After completing this course, participants should be able to describe common types of threaded and non-threaded fasteners and identify applications for which each type might be used. They should also be able to describe basic procedures for installing fasteners.	2	Intermediate
Electrical Maintenance: Introduction to the NEC	This course is designed to familiarize participants with the organization and layout of the National Electrical Code® (NEC®). After completing this course, participants should be able to use the NEC to locate specific types of information.	2	Intermediate
Electrical Maintenance: Relays, Part 1	The purpose of this unit is to teach the basic principles of protective relays and to introduce directional and non-directional relays. The unit begins with the basic theory of protective relays, commonly used types of relays, and a brief explanation of how these relays are used. Additional details and examples of applications are provided for directional and non-directional relays. At the conclusion of this unit, the trainees should have a basic understanding of how protective relays work. They should be able to explain the need for protective relays and to list commonly used types of relays and their functions. They should also be able to explain how directional and non-directional relays work and give examples of situations in which they are used.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Electrical Maintenance: Relays, Part 2</b>	The purpose of this unit is to continue the development begun in Relays, Part 1 by introducing differential and pilot relays and discussing routine relay maintenance. The relays examined are differential relays and pilot relays used for differential comparison, phase comparison, and transfer tripping. The unit demonstrates how to inspect and maintain relays and how to put them in and out of service. At the conclusion of this unit, trainees should be able to explain how differential and pilot relays work and give examples of situations where they are used. They should also be able to describe how to approach routine inspection and maintenance and how to put a relay in or out of service.	1	Intermediate
<b>Electrical Maintenance: Troubleshooting Electrical Circuits</b>	This course is designed to familiarize participants with the use of basic troubleshooting procedures to troubleshoot problems in electrical circuits. After completing this course, participants should be able to identify and describe the main steps of a basic troubleshooting procedure and use the procedure to troubleshoot problems in electrical equipment and electrical systems.	2	Intermediate
<b>Electrical Safety General Awareness</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, OSHA requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Electrical Safety Introduction (Z-462) for Canada</b>	Spark discussion with your team on effective ways to recognize, evaluate, and avoid electrical hazards. Topics covered include personal protective equipment related to electrical safety, regulatory requirements for working on equipment, and electrical injuries such as shocks, burns, electrocutions, and falls.	0.25	Intermediate
<b>Electrical Switches</b>	An electrical switch is any device used to interrupt the flow of electrons in a circuit. This course begins with an overview of switches, then describes several types of common switches, and ends with common switch contact designs.	0.25	Intermediate
<b>Electrical Systems</b>	This course explains the basic components of an electrical distribution system, its function, and typical monitoring and protective equipment in the system.	1	Intermediate
<b>Electrical Systems and Equipment, Part 1</b>	This course focuses on three of the major components in an electrical system: unit transformers, switchyards, and substations. This course also describes how these components fit into an electrical system, how they operate, and how they are checked to make sure they continue to operate properly.	1	Intermediate
<b>Electrical Systems and Equipment, Part 2</b>	Electrical power systems deliver electricity to customers and to the plant. This course teaches how electrical power systems deliver electricity to customers and how electrical power systems adjust voltage and current for more economical power delivery. It also shows how electrical power systems deliver electricity to plant equipment and how the station service system can help ensure a continuous flow of power to the plant in the event of certain equipment malfunctions. Finally, it describes the essential service system, which helps operators maintain control during an emergency.	1	Intermediate
<b>Electrical Wiring: Cables and Conductors</b>	This course is designed to familiarize participants with the basic construction and installation of electrical cables and conductors. After completing this course, participants should be able to describe the basic construction of cables and conductors, and describe how conductors are classified and rated. They should also be able to describe factors that affect the installation of a conductor for a specific application, and describe how to make splices and terminations.	2	Intermediate
<b>Electrical Wiring: Conduit Installation</b>	This course is designed to familiarize participants with the basic concepts of conduit and conduit fittings, and typical methods of cutting, bending, and installing conduit. After completing this course, participants should be able to describe the basic types of metallic and nonmetallic conduit, describe common types of conduit fittings, and describe procedures for cutting, bending, and installing metallic and nonmetallic conduit.	2	Intermediate
<b>Electrical Wiring: Splices and Terminations</b>	This course is designed to familiarize participants with common types of hardware and accessories used in making electrical splices and terminations, and how to prepare for and make various types of connections. After completing this course, participants should be able to identify basic types of terminals, connectors, tools, and materials used in making splices and terminations, and describe the applications for which they are suitable. They should also be able to describe how to make some common types of electrical splices and conductor terminations.	2	Intermediate
<b>Electrical Work for Florida Pool Contractors</b>	Are you up-to-date on the 2017 NEC requirements for swimming pools? This interactive online course will review NFPA 70, 2017 National Electrical Code, Article 680 Parts I and II, which contain the requirements for swimming pools, fountains, and similar installations. Included will be a review of certain definitions and the requirements associated with ground fault protection, corrosive environments, motors, lighting, receptacles, and equipotential bonding. Various changes associated with the 2017 NEC will also be highlighted.	1	Advanced
<b>Electromagnetic Relays</b>	When a fault occurs, current increases and voltage decreases. The increased current causes excessive heating, which depending on where the fault occurs, can result in a fire or an explosion. If the fault is not quickly isolated, it can cause damage that may result in loss of service. Various types of control systems are used to detect and isolate faults with minimum disturbance. A key component of all of these control systems is the protective relay. This course examines the functions and operation of some types of protective relays.	1	Intermediate
<b>Email and Messaging Safety</b>	Email is the primary means of attack from cyber-perpetrators. This course provides an overview of cybercrime via email, and how to employ safe email and messaging practices to avoid and help prevent cyber threats, attempts at fraud and identity theft.	0.25	Fundamental
<b>Email Basics</b>	Almost 145 billion emails are sent every single day. They are easy to send and virtually instantaneous. Emailing has become one of the most common ways for people to communicate with friends and family, as well as co-workers and customers. While email is simple and familiar, there are important rules to follow to ensure that messages are clear, polite, and effective. This course will outline those rules so that every email sent is a professional one.	0.5	Intermediate
<b>Email Etiquette</b>	Email has long since replaced postal snail mail as the preferred method of communication, and this course provides the complete training you'll need to become an expert on the proper usage and terminology that goes along with personal and professional email communication.	2.5	Intermediate
<b>Emission Controls</b>	One of the critical concerns of industries that deal with hazardous chemicals is the release or discharge of these substances into the air. This course identifies different types of emissions and their effects on the environment and describes methods that can be used to prevent or control emissions.	1	Intermediate



# AEC Complete

Title	Description	Hours	Level
Employee Discipline	Hate those awkward moments when you have to 'deal' with inappropriate or ineffective behavior? Make those moments an experience of the past by learning how to appropriately discipline an employee. With proper implementation of the skills taught in this course, you will find that those awkward moments are few and far between resulting in a better experience for everyone, as well as your overall results.	1	Intermediate
Employee or Independent Contractor: The Risk of Misclassification of Employees	A growing number of workers are trading in the corporate hierarchy for the freedom to be their own boss. These independent contractors can be found in nearly every profession, from lawyers and business consultants to writers and yoga instructors. They set their own schedule and they enjoy a wide variety of work experiences, but they also pay their own taxes and secure their own health insurance. A problem arises, however, when employers misclassify workers who are employees under the law as independent contractors. Depending on the specific terms of the working arrangement with an independent contractor, such as hours worked, reporting structure, payment schedule, et cetera, you may be in violation of some very serious worker classification laws. In this interactive, online course, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors.	0.5	Fundamental
Energy Conversion Analysis (RV-10839)	Energy conversion devices are an important element of progress of society. Understanding their limitations and efficiencies is vital to our energy-informed and energy-conscious society. The ideal, simple, and basic power cycles of Carnot Cycle, Brayton Cycle, Otto Cycle, and Diesel Cycle, the ideal power cycle components and processes of compression, combustion, and expansion, and the ideal compressible flow components of subsonic nozzle, diffuser, and thrust are presented in this 4-hour online course. In the presented power cycles, power cycle components and processes, and compressible flow analysis, air is used as the working fluid.	4	Intermediate
Energy Conversion Ideal vs Real Operation Analysis	How well do you know the basic power cycles (Brayton Cycle, Otto Cycle and Diesel Cycle)? In this interactive online course we will cover the 3 cycles as well as power cycle components/processes (compression, combustion and expansion) and compressible flow components (nozzle, diffuser and thrust). We'll present power cycles, power cycle components/processes and compressible flow components analysis with air used as the working fluid. For each power cycle, you'll get the thermal efficiency derivation presented with a simple mathematical approach. Also, for each power cycle, a T - s diagram and cycle major performance trends (thermal efficiency, specific power output and power output) are plotted in a few figures as a function of compression ratio, turbine inlet temperature and/or final combustion temperature, working fluid mass flow rate and both isentropic compression and expansion efficiency. We won't deal with costs (capital, operational or maintenance).	4	Advanced
Energy From Waste	How can you obtain energy from waste? This interactive, online course will cover potential sources of waste available for energy recovery - hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. Systems utilized for Energy from Waste technologies will also be reviewed. This information is useful training for design professionals, facility managers, and system maintenance personnel.	1	Fundamental
Energy Management Exercise, and Safety	Have time set aside, but no energy to use the time well? Learn the skills of managing your energy to find yourself getting more done and feeling better while you do it! Through the effective use of application exercises and a rich multimedia process, this course will take you on a journey of discovery to implement a workable plan to energize your life and get more done.	0.5	Intermediate
Energy Modeling Outcomes - Design with Confidence	What is energy modeling and how can it help in your next site design? We all know that having the right information earlier produces substantially superior results. Systematic early design energy modeling assists design teams and owners by clarifying the decision space, and bringing relevant information to the discussion. This interactive online course will help you discover the replicable methods to produce better information sooner as well as the incentive programs to look for that will subsidize these best practices. Building energy modeling and distributed generation systems will be covered so you will have all of the tools necessary to push for net zero building designs.	1	Intermediate
Engineering Economic Analysis	This five-hour online course is a review of engineering economy analysis concepts. The course reviews the basic concepts of economic analysis, including the time value of money, cash flow diagrams, and present value methods. The most common analysis factors that are used in economic analysis are explored. Both discrete compounding and continuous compounding factors are discussed. Methods for converting annual values to present values, future values to present values, and future values to annual values are shown, as well as their complement equations. Several different analysis methods are reviewed, including present worth, annual cost, capitalized annual cost, payback, and multiple alternative analysis. The effects of taxes, including depreciation effects, are explained and shown in examples.	5	Advanced
Environmental Awareness	Maintaining a healthy environment is essential for a healthy life. We all need clean air to breathe, clean water to drink, and safe food to eat. You need to be aware of and understand how your job impacts the environment, so you can do your part to help protect it. This course discusses basic environmental regulations and how to be a good environmental steward. This course also talks about resource conservation, how to reduce and dispose of waste, and finally how to be prepared in the case of an environmental incident.	0.25	Intermediate
Environmental Driving Hazards	Although most driving occurs during the daytime hours with good visibility, there are instances where you may have to drive with limited visibility or in inclement weather. This course identifies common environmental hazards and strategies to prevent crashes related to environmental hazards.	0.25	Intermediate
Equipment Drive Components: Gear, Belt, and Chain Drives	This course is designed to familiarize participants with basic concepts associated with the operation of gear drives, belt drives, and chain drives. After completing this course, participants should be able to describe the general function of gear drives, belt drives, and chain drives, and explain how each of these equipment drive components operates to transfer power from a driver to a piece of driven equipment. They should also be able to describe operator checks that are commonly performed on gear drives, belt drives, and chain drives.	2	Intermediate
Equipment Hazard Basics	Equipment in the workplace causes many incidents every year. Hazards exist where there is a risk of human contact with a machine's moving parts. Movement can occur at startup, during operation, or while a machine is stopping. Many incidents occur due to malfunctioning or missing machine guarding, or to workers taking shortcuts. It is important to know the types of hazards that equipment typically creates in order to avoid incidents. This course will cover common types of hazards associated with equipment, as well as how to identify and avoid these hazards.	0.25	Intermediate
Equipment Lubrication: Using Lubricants	This course is designed to familiarize participants with some of the methods and devices used to lubricate equipment components such as bearings. After completing this course, participants should be able to describe the use of hand grease guns, pneumatic grease guns, grease cups, and centralized lubricators. They should also be able to describe the basic operation of drip-feed oilers, oil baths, bottle oilers, ring oilers, and circulating oil systems. In addition, participants should be able to describe the use of contact seals, labyrinth seals, and mechanical seals, and to describe how valve packing is lubricated.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Ergonomics Economics</b>	What is ergonomics and how does it benefit you? This interactive online course looks at medical aspects which will help you understand why ergonomic study and a well-designed work environment are not only important, but essential. In addition to general solutions presented, you will review 13 common user-friendly ergonomic guidelines which have been developed from exhaustive studies. Finally, you will examine the economics of ergonomics to learn how well-designed ergonomic products and practices can help produce savings.	0.5	Intermediate
<b>Ergonomics for Industrial Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Ergonomics for Industrial Environments for Canada</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in industrial environments, including engineering and administrative controls as well as motion-based, physical, environmental, and psychological risk factors associated with MSDs. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Ergonomics for Office Environments</b>	Every year, hundreds of thousands of workers are diagnosed with musculoskeletal disorders, or MSDs. Understanding how to recognize and reduce the stress on your body from your daily work environment will help greatly reduce the likelihood of developing an MSD. This course discusses MSD prevention techniques in office environments, examples of awkward postures and positions, proper lifting technique, workstation setup, work habits, and stretches. Following the tips and guidelines illustrated in this course will reduce your chances of suffering from an MSD and help you have a healthy, productive work experience.	0.5	Intermediate
<b>Escape Respirators and SCSRs</b>	A respirator is a piece of personal protective equipment that guards the user against hazards in the air. There are many types of respirators and each type protects its user from a specific airborne hazard. Escape respirators allow a person who works in a normally safe environment enough time to escape if a respiratory hazard suddenly occurs. This course will discuss the different types of hazardous atmospheres that require escape respirators, how to select, inspect, and put on a self-contained self-rescuer, also called an SCSR, as well as how to use an SCSR.	0.53	Intermediate
<b>ESD Precautions</b>	This course covers the principles of electrostatic discharge and the necessary precautions that should be taken to avoid damage to sensitive equipment.	1	Intermediate
<b>Essential Lighting: The Language, Metrics &amp; Process of Lighting Design</b>	This 3-hour interactive online course provides a basic understanding of lighting, its properties, and the terminology used to define various aspects of lighting. From the ability to accurately describe characteristics of color and intensity of a light source, to understanding how we respond to light, you will come away with insights on how lighting can literally change your world - in ways that can be good or bad. The author provides numerous examples that allow the reader to relate the technical issues to the everyday experience. Everyone knows lighting from their experience of it. Understanding its metrics, how it can be manipulated to help us perform better, use energy more effectively, and improve our moods can be valuable not only to designers, but to anyone interested in their environment. The course also delves into how lighting design decisions are made, and the positive potential effects of good lighting design practice. Some examples of common, everyday lighting problems and solutions are discussed at the end of the course to bring the value of thoughtful lighting design into perspective. Understanding terminology and concepts discussed in this course will be important before advancing to additional lighting design topics. There will be a test included at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Essential Skills of Communicating: 01-Empowering Leadership Communication</b>	Utilize an empowering and dynamic communication process to increase team members motivation and commitment.	1	Intermediate
<b>Essential Skills of Communicating: 02-Craft Clear and Concise Messages</b>	Construct and express clear and concise messages in both written and spoken communication.	1	Intermediate
<b>Essential Skills of Communicating: 03-Deliver Messages Designed for the Team Member</b>	Deliver messages that address the interests of the listener.	1	Intermediate
<b>Essential Skills of Communicating: 04-Listen To Communicate</b>	Use Reflecting, Probing, Supporting, Advising to demonstrate active listening to others.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
Essential Skills of Communicating: 05-Manage Nonverbal Behavior	Make verbal and nonverbal communication congruent to reinforce the intent of messages.	1	Intermediate
Essential Skills of Communicating: 06-Impactful Feedback	Provide the rationale for your feedback, whether to reinforce or improve performance.	1	Intermediate
Essential Skills of Communicating: 07-Mastering Essential Skills of Communicating	Practice the skills learned in Essential Skills of Communicating in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 01-The Work of Leaders	Distinguish between leadership and management tasks and familiarize yourself with the Leadership Achievement Path.	1	Intermediate
Essential Skills of Leadership: 02-Focus on Behavior	Base discussions about performance and work habits on behavior rather than on personalities and attitudes.	1	Intermediate
Essential Skills of Leadership: 03-Maintain or Enhance Team Member Self-Esteem	Acknowledge contributions, results and accomplishments to enhance self-esteem.	1	Intermediate
Essential Skills of Leadership: 04-Encourage Team Member Participation	Involve team members in goal setting, problem-solving and decision-making.	1	Intermediate
Essential Skills of Leadership: 05-Lead Effective Meetings	Deploy meeting management skills to meet the goals of the meeting in the available time.	1	Intermediate
Essential Skills of Leadership: 06-Mastering Essential Skills of Leadership	Practice the skills learned in Essential Skills of Leadership in a full scenario situation.	1	Intermediate
Essential Skills of Leadership: 07-Essential Skills of Leadership Health Check	Test your ability to apply Essential Skills of Leadership concepts in this skills-based scenario assessment.	1	Intermediate
Essentials of I-9 Compliance	<p>To many employers, a Form I-9 may appear to be a simple one-page piece of hiring paperwork. However, the one page Form I-9 comes with enough rules and regulations to fill a 69-page how-to manual, the M-274 Handbook for Employers. There are many common mistakes and human errors that can be made while completing and maintaining Form I-9 records. If an employer fails to complete or maintain I-9 documentation correctly, that employer may fall out of compliance and suffer harsh financial penalties.</p> <p>This interactive, online course contains valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.</p>	0.5	Fundamental
Essentials of Industrial Wastewater Treatment	<p>High-quality fresh water is an increasingly rare and valuable commodity. The Earth contains a finite supply of water and the small fraction which is useable for drinking and other valuable uses will continue to come under increasing pressure. With a worldwide focus on water quality and management, the fate of wastewater generated by industry is more important than ever. Treating water for discharge or reuse, and minimizing the amount of water to be treated, are important concepts for the engineering, science or other professional to understand. This interactive online course will focus on considerations and technologies for treating industrial wastewater. Treatment of municipal and domestic wastewater, such as at publicly owned treatment works (POTWs), will be discussed briefly.</p>	1	Fundamental
Essentials of Intelligent Transportation Systems	<p>What is an Intelligent Transportation System? Intelligent Transportation Systems (ITS) apply a variety of technologies to monitor, evaluate, and manage transportation systems to enhance efficiency and safety. This interactive online course provides an overview and history of ITS from early initiatives through the evolution of technology, systems engineering, and institutional structures. We will also describe the role of ITS in changing travel and commuter patterns and travel demand management.</p>	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Essentials of Lean Manufacturing</b>	What is Lean Manufacturing and how can it be used to improve the efficiency and effectiveness of your company's processes or services? Lean Manufacturing is more than just a method and a set of tools for improving processes, it is also a philosophy for how to do work every day. This interactive online course will provide you with a simplistic approach to Lean Manufacturing, promote a mindset change, and share the tools needed to implement value-creation processes with minimum waste. You will learn how to think Lean and apply Lean methods and tools to improve the quality and efficiency of your company.	1	Intermediate
<b>Essentials of Quality Concrete</b>	This course provides an overview of concrete, including its properties and basic components, the properties required for plastic and hardened concrete, and the variables that influence the quality of concrete. It will discuss some of the mechanical and durability characteristics required of concrete for various applications. The materials used in concrete mixtures, including portland cement, supplementary cementitious materials, aggregates, water and air will be discussed along with the general concepts of proportioning concrete mixtures. This course will introduce admixtures and explain their purpose. It explores air entraining and water reducing admixtures, accelerators and retarders, as well as other value added admixtures. This course also provides the basics of troubleshooting concrete slabs, such as workability, place-ability, finish-ability, and causes for cracking and other defects in concrete.	2	Fundamental
<b>Essentials of Six Sigma</b>	Six Sigma is recognized as a strategy that utilizes data gathering and statistical analysis to evaluate process performance and isolate sources of defects. This course covers the basic concepts of Six Sigma, its management methodology, and the techniques and tools needed for process improvements in order to help businesses run more efficiently.	0.75	Intermediate
<b>Essentials of Smart City Applications</b>	What is a smart city? A smart city is an urban development vision to integrate multiple information and communication technologies and Internet of things (IoT) solutions in a secure fashion to manage a city's assets. This interactive, online course will list possible stakeholders of a smart city, as well as how a smart city policy is developed. Smart city technologies will also be discussed.	1	Fundamental
<b>Essentials of the Connected Vehicle</b>	What is a connected vehicle? Connected vehicles offer a fundamental change in systems management and ITS infrastructure by focusing on vehicle-to-vehicle and vehicle-to-roadway communication. This interactive, online course discusses the current and emerging technology and the institutional, policy, and funding challenges of connected vehicle applications.	1	Fundamental
<b>Ethical Decision Making (RV-10705AW)</b>	Professionals associated with site, building, or neighborhood planning, design, and development have a unique charge to make ethical decisions with the welfare of both the environment and citizens in mind. The goal of this course is to expose professionals to some of the most common ethical considerations within planning, design, and construction professions and give the opportunity to learn how to create a built environment that improves the quality of life of a community while adhering to simple strategies to facilitate ethical practice in the work place.	2	Fundamental
<b>Ethical Decision Making for Design and Construction Professionals</b>	Designers, Planners, Architects, Landscape Architects, and Engineers all need to know about and adhere to established codes of ethics. Then you will protect the public and the environment now as well as in the future. This webcast gives you the history of the events that led to our current attitudes regarding ethical decision making. You will get specific examples of the consequences for making unwise decisions. You'll also receive instruction in the ethical considerations involved in making good, safe, ethical decisions. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 2 hours of credit toward the required continuing education.	2	Intermediate
<b>Ethical Decision Making for Engineers #1</b>	In this course we examine the NSPE Code of Ethics. We review cases ruled upon by the NSPE Board of Ethical Review, which will be key to helping you determine how you should act when faced with ethical decisions. We explore each of the 6 fundamental canons.	2	Fundamental
<b>Ethical Decision Making for Engineers #2</b>	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this second course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how the Code specifically applies in each case. We will look into a case involving the use of unlicensed software to create work products. We will review the concept of conflict of interest. Finally, we will discuss cases involving licensure and practicing in different states.	1	Fundamental
<b>Ethical Decision Making for Engineers #3</b>	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this third course, we will continue the direction of the NSPE Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of using existing work for different clients and disclosing required information. We will look at cases involving conflict of interest and the engineer's responsibilities for handling incomplete specifications. Finally, we will look at the ethical responsibility to notify authorities and owners of potentially dangerous conditions.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Ethical Decision Making for Engineers #4</b>	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fourth course, we will continue the discussion of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into cases involving conflicts of interest and the appearance of conflicts of interest. We will also look at a case involving responsibilities of the engineer in situations that may endanger public safety. Finally, we will look at the responsibilities of an engineer when reviewing another engineer's work.	1	Fundamental
<b>Ethical Decision Making for Engineers #5</b>	Engineering is an important and learned profession. As a member of the engineering profession, you are expected to maintain the highest standards of honesty and integrity. Engineered solutions to modern problems require public acceptance and often public funding, both of which require continued public confidence in the engineering profession. Public confidence in any profession, whether it is engineering, medicine, law, etc., may easily be shaken by indications of unethical behavior in that profession. The engineering profession today enjoys a very high level of public confidence and, consequently, is effective in meeting the technological needs of society. In order to continue this effectiveness, the services that you as an engineer provide require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public safety, health, and welfare. Engineers must adhere to a standard of professional behavior upholding the highest principles of ethical conduct. We call the standard of behavior engineering ethics, and embody it in the codes of ethics published by the state boards and by professional societies, such as NSPE. In this fifth course, we will continue the direction of the Code of Ethics by looking at a few case studies and how they apply specifically to the Code. We will look into the topic of participating in political fundraisers. We will also look at a case involving the ethics in employee agreements. We will discuss the implications of protecting wildlife. Finally, we will look the rights of engineers when speaking out about matters of public policy.	1	Fundamental
<b>Ethics for Certified Planners</b>	Most planners will work either in the public sector or in close connection with the public sector at some point in their professional career. Planners associated with the public sector have a unique charge to make ethical policy decisions with the welfare of citizens in mind. The goal of this 2-hour interactive online course is to expose planners to the importance of ethics within the planning profession and develop a thorough understanding of the American Institute of Certified Planners (AICP) Code of Ethics and Professional Conduct. This course explains the importance of the AICP Code of Ethics and Professional Conduct and helps planners hone their ethical problem solving skills through practice ethical scenarios. This course will also cover some of the most common ethical considerations within the planning profession, including: <ul style="list-style-type: none"> <li>Social Responsibility</li> <li>Environmental Responsibility</li> <li>Consequences of Policy Implementation</li> <li>Interrelatedness of Decisions</li> </ul>	1.5	Intermediate
<b>Ethics for Land Surveyors: Abiding By the Rules &amp; Regulations for Surveying</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the second canon - abiding by the rules & regulations for surveying. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Land Surveyors: Client Conflicts, Advertising &amp; Professional Integrity</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the fifth, sixth, and seventh canons - client conflicts, advertising, and professional integrity. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Land Surveyors: Decision-Making in Everyday Practice</b>	Examining the ethics of an individual's actions, given a theoretical or teaching situation, is a standard method of appraising and judging professional practices. Many State Boards of Registration have promulgated either a Code of Ethics or a Creed and Canons with the intention of setting the bar for professional ethics. These guides are based on moral assumptions considered essential to our culture, and are the standards by which professionals are expected to make decisions, behave and act. This 1-hour interactive online course examines seven situations that surveyors may commonly face, and discusses correct actions in the context of what the National Society of Professional Surveyors (NSPS) calls its Surveyor's Creed and Canons. This course reviews the basic ethics and conduct expected of surveyors in professional practice. In the context of the Surveyor's Creed and Canons published by the National Society of Professional Surveyors (NSPS), you will learn the parameters of ethical decision-making by examining a series of challenges that surveyors typically encounter on a regular basis.	1	Intermediate
<b>Ethics for Land Surveyors: Refraining From Conduct Detrimental to the Public</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the first canon - refraining from conduct that is detrimental to the public. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental
<b>Ethics for Land Surveyors: Working Outside Your Area of Expertise and Avoiding Conflicts of Interest</b>	This course discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the third and fourth canons - working outside your area of expertise and avoiding conflicts of interest. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Ethics for Professional Architects Part I</b>	Unethical conduct by prominent individuals in various professions from government to business, from teaching to architecture, is constantly being reported in the news. In a time when our moral foundations are continually being questioned, what tools do architects have to deal with ethical dilemmas? In this 2-hour interactive online course, standards of ethical conduct are examined in a variety of situations amply illustrated with case studies. The architect will focus on ethical issues in contemporary professional practice by looking at a sampling of real ethical issues that other professionals sometimes face. Using the AIA Code of Ethics as a guide and applying the ethical decision making model, the architect will examine some of the everyday complex issues of professional practice, such as conflicts of interest, whistle-blowing, safety, confidentiality and gifts. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Ethics for Professional Architects Part II</b>	Unethical conduct by prominent individuals in various professions from government to business, from teaching to architecture, is constantly being reported in the news. In a time when our moral foundations are continually being questioned, what tools do architects have to deal with ethical dilemmas? In this 2-hour interactive online course, standards of ethical conduct are examined in a variety of situations amply illustrated with case studies. The architect will focus on ethical issues in contemporary professional practice by looking at a sampling of real ethical issues that other professionals sometimes face. Using the AIA Code of Ethics as a guide and applying the ethical decision making model, the architect will examine some of the everyday complex issues of professional practice, such as conflicts of interest, whistle-blowing, safety, confidentiality and gifts. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Ethics for Professionals</b>	What are ethical guidelines and how do they apply to you in your professional field? Every day you face decisions that have ethical implications. While the welfare and safety of the public are everyone's primary concerns, time, personal and resource pressures can often challenge these commitments. Taking a pro-active approach to workplace ethics is the best course of action to mitigate this risk, avoid legal problems, and build a working atmosphere of integrity, trust and purpose. In this interactive online course, we will explore how to develop a strong and sustainable set of workplace ethics and guidelines designed to mitigate ethics creep, avoid legal implications, and build a solid, ethical foundation for a healthy workplace culture. We will explore common ethical topics and challenges and will detail the best practices when faced with thought provoking situations. We will also present the differences between a Code of Conduct and a Code of Ethics and how they can affect each professional differently.	1	Fundamental
<b>Ethics for Texas Residential Contractors</b>	Residential contractors are responsible for creating and maintaining safe homes for their communities. Contractors are considered to be professionals and should always act in an appropriate and professional manner; therefore it is important to have an understanding of the ethics that govern this profession. The goal of this 1-hour interactive online course is to examine chapters in the Texas Statutes Property Code to develop a working knowledge of professional ethics and an understanding of the complexities of professional decision-making. The following sections from the Texas Statutes Property Code will be discussed in this course: Title 4: Chapter 28. Prompt Payment to Contractors Title 5: Chapter 53. Liens Title 16: Chapter 418. Prohibited Practices	1	Fundamental
<b>Ethics for the Practicing Engineer - An Introduction</b>	This course is designed to satisfy state board requirements for continuing education in ethics. This will be an introduction to professional ethics, contrasting common morality to professional ethics, and will present analytical tools to identify and classify ethical dilemmas potentially faced by practicing engineers.	1	Fundamental
<b>Ethics for the Practicing Engineer - Managing Risks Imposed on the Public</b>	All engineering designs and all operations of engineered systems expose the public to some risk. Engineers are ethically obligated to protect the public from unacceptable levels of risk, which raises the questions: How is risk defined and quantified? What levels of risk are acceptable? In this interactive online course, we will discuss ways to evaluate risks imposed on the public by engineers. We will also discuss ways to determine which risks are acceptable and which are unacceptable.	1	Intermediate
<b>Ethics for the Practicing Engineer - Organizational Issues</b>	Organizational issues can affect the decisions made by engineers every day. This interactive online course will focus on issues facing engineers working in large organizations. Case studies of organization-induced problems (such as the two space shuttle failures, the Macondo blowout, the GM ignition switch case) will be used to help participants recognize when organizational problems might cause ethical issues for engineers.	1	Intermediate
<b>Ethics: Shades of Green</b>	This webcast will focus on how our professional ethics are no longer black and white, they are shades of green. Not only do professionals have an obligation to design for the health, welfare, and safety of people they represent; they also have an obligation to safeguard the environment. This course will discuss why professionals have a green ethical obligation to promote excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment. We will focus on how professional societies and registration boards are holding professionals accountable for sustainable design and planning practices and to consider the environment in everything they do.	3	Fundamental
<b>Ethylene Oxide Safety</b>	This course will introduce and describe the characteristics and uses of ethylene oxide (EtO). It will also discuss the health hazards of ethylene oxide and how to protect yourself with the use of respirators and other personal protective equipment. OSHA regulations on ethylene oxide will be reviewed and will include information on exposure limits and monitoring; compliance; medical surveillance; and communication. Recommendations on engineering controls, work practices, and emergency response will be provided.	1	Intermediate
<b>Everyone is a Leader</b>	For a time, the Disney company got some of its best ideas from the janitor. Leadership can be seen in any role and from any person. Using application exercises and rich multimedia, learn how to identify leadership potential and how to use the influence of unofficial leaders to everyone's benefit.	0.5	Intermediate
<b>Excel Basics for Mac</b>	Get Started with Microsoft Excel - The Most Useful Software Ever Created Excel can do almost anything crunch numbers, create lists, store data, edit budgets, and more. In this basics course we'll show you how to get started with Excel on a Mac, including using the most popular features. Whether you're a first-time Excel user, or if you just want to re-learn the fundamentals, this course is for you!	2.25	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Excel for Project Management</b>	Manage a Project from Project Charter and Requirements through Task Management and Stakeholder Communication—All Within Excel. Learn to create the deliverables of a Project Management Plan in Excel with worksheets including Project Charter, Requirements, Issues, Work Breakdown Structure (WBS), Risks, and Stakeholder Communication. When all of the information about your project is inside one workbook, you can answer any question, and you'll always know where to track a new piece of information. A new requirement identified? Add it to your Requirements sheet. A new stakeholder? Add them to your Stakeholder Communication sheet. Without any additional project management tools, you can track all of the information you need and use Excel features such as linked fields and conditional formatting to create a professional and effective Project Management Plan.	1	Fundamental
<b>Excel: Creating Dashboards</b>	Get More From Excel - Learn To Use Forms, Lookup Functions, Charts, PivotTables, and Slicers To Turn Data Into Answers. Crunching numbers is what Microsoft Excel does best - but how do you use those numbers to get the answers you need? This course will show you how to use advanced Excel features to turn massive amounts of data into visual, customizable dashboards. The ability to easily query and display information from your Excel data is a helpful tool for decision making, and this course will demonstrate five advanced Excel features (Forms, Lookup Functions, Charts, PivotTables, and Slicers) which will do just that.	3	Fundamental
<b>Excel: Data Analysis With Pivot Tables</b>	Get More From Your Excel With The Power Of PivotTables. Pivot Tables are the perfect tool to analyze large amounts of data in Excel. Being able to summarize, visualize, and tabulate your data makes PivotTables an important skill for anyone who uses Excel to store and report on data, and in this course Microsoft trainer Kathy Jones will show you how to effectively use the PivotTable tools in Excel 2013 and 2016.	2.5	Advanced
<b>Excel: Introduction to PowerPivot</b>	Learn How To Transform Excel Into Your Big Data Power Tool Power Pivot is an Excel add-in you can use to perform powerful data analysis and create sophisticated data models. With Power Pivot, you can mash up large volumes of data from various sources, perform information analysis rapidly, and share insights easily. In this course we'll show you everything you need to know in order to install and start using Power Pivot in Excel.	1.25	Fundamental
<b>Excel: Power Functions</b>	Learn to Use the 10 Excel Functions Recommended by the Experts Excel provides over 400 functions to perform a variety of calculations within your data. With this many functions, it's guaranteed you're missing out on some powerhouse formulas that can make your day easier. This course explores 10 functions the experts recommend to expedite your data analysis.	1	Fundamental
<b>Existing Building Commissioning: Implementing Retrocommissioning on Your Project</b>	What is retrocommissioning and how will it benefit your building? Learn about the retrocommissioning process and how to implement this process on an existing building, with lessons learned from a commissioning professional and Professional Engineers. This interactive online course will give a quick overview of commissioning and the benefits of commissioning for existing buildings, followed by how to implement retrocommissioning by walking the participant through each step of the process. Benefits of and difficulties with implementing the commissioning process on existing projects are evaluated. Finally, a sample case study is given which discusses lessons learned on the retrocommissioning implementation process.	1	Intermediate
<b>Exit Routes, Emergency Action Plans &amp; Fire Prevention Plans</b>	A safe means of escape is crucial when it's necessary to quickly evacuate a building. This course will provide examples of some previous egress tragedies that will help you to understand critical means of egress requirements. You will learn how to develop an emergency action plan and a fire prevention plan that may be implemented in your facility so you can be ready if disaster strikes.	1	Fundamental
<b>Explosive and Flammable Chemicals</b>	A review of the U.S. Chemical Safety Board's website shows a running scroll of chemical accidents in the news. Almost on a daily basis, there is a listing for a fire or explosion at an industrial site and many of these accidents are due to an explosive or flammable chemical. While production and use of these types of chemicals are essential to many industries, it is vital that they are handled properly to prevent the loss of life, property damage, or evacuations of nearby communities. Through this interactive, online course, a foundation for recognizing the classification of explosive or flammable chemicals will be provided. In addition, safe work practices for the storage and use of these chemicals will be presented.	1	Intermediate
<b>Eye and Face Protection</b>	Workers are subject to blindness, contusions and sometimes fatal injuries, due to eye and face hazards. 90% of all workplace eye injuries can be avoided by using the proper safety eyewear. This interactive online course will teach you how to select the proper personal protective equipment for eye safety. Additionally you will learn OSHA regulations for eye and face protection. You will also learn how to properly maintain your eye and face protective equipment.	1	Intermediate
<b>Facilitating Meetings and Groups</b>	LearnSmart's Facilitating Meetings and Groups video training course demonstrates the extensive range of skills and tools needed to organize meetings that are both productive and time efficient. Through this course, viewers learn how to take charge, how to lead, and how to move groups towards their goals.	7	Intermediate
<b>Facility Asset Management</b>	Facility asset management is the process of taking care of things of value in and around a facility; equipment, buildings, systems, walls, roofs, sidewalks, parking lots, and so on. In this course you will learn about the components necessary to implement an effective asset management program. You will also learn about the relationship of asset cost to maintain and future capital expenditures, purchasing the appropriate quality assets and parts, documenting asset history and performance, critical asset analysis, failure mode and effect analysis (FMEA), auditing of the maintenance process, life cycle analysis, forecasting and budgets, and performance measures.	1	Fundamental
<b>Facility Maintenance Management</b>	Facility maintenance management is the logistical component of taking care of a facility, and involves managing the day to day maintenance requirements of a facility. In this course, you will learn about work request management, work planning and work scheduling, computerized maintenance management systems (CMMS), and communication methods and techniques associated with the maintenance function. You will also learn about how to address staffing concerns, how to address travel and transportation of your maintenance technicians, and backlog management. Also discussed are how to properly lead a facility maintenance team, and how to develop a long term facility maintenance management plan.	1	Fundamental
<b>Facility Management Essentials</b>	In this course, you will learn about the key principles you need to understand to be able to be a successful facility manager. You will learn about leadership and management skills needed in facility management, in addition to topics around business finance, staffing, work flow/asset tracking, work planning/scheduling and maintenance, management and craft training, performance measures, and customer/client communication and coordination.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Fall Prevention and Protection - General Industry</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	1.05	Intermediate
<b>Fall Protection for Canada</b>	Working at elevated heights presents a serious danger of falling. Falls can be caused by inattentiveness, slippery surfaces, working in awkward or out-of-balance positions, or insufficient training. This course highlights numerous methods of prevention and protection, including fall arrest systems, the equipment associated with fall prevention and protection systems, vertical and horizontal lifelines, as well as inspection and maintenance guidelines. This course also discusses associated topics such as the proper procedure for putting on a body harness, lifeline swing hazards, calculating fall space clearance, and harness suspension syndrome.	0.75	Intermediate
<b>False Alarm Prevention</b>	Across the country, state laws are evolving on a constant basis to address the problem of false alarm signals. The daily operation of alarm companies across the United States is critical and essential to the success of reducing the number of false alarm dispatches. The problem of false dispatches will not be reduced on any significant level without a careful and constant review of these ordinances, as well as the conscientious application of aggressive procedures in designing, installing and servicing alarm systems, and training alarm system end users. This 2-hour online course provides solutions for the prevention of false alarms based on statistical information, as well as the application of technical and operational procedures. This course provides a foundation for alarm contractors to help reduce false alarms by educating their customers about proper alarm operation, the role of law enforcement, and the technical responsibility of the alarm contractor. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Fans</b>	Many processes and systems in an industrial facility require the movement of air or other gases. Air movement is important in applications such as heating and cooling, pollution control, combustion, and ventilation. One of the most common ways to move air and other gases in a controlled manner is with fans. This course identifies the major components of fans and describes the operation of various types of fans. The operator's role in keeping fans working properly is also examined.	1	Intermediate
<b>Fatigue Management</b>	Fatigue in the workplace is a dangerous condition in which an individual may not make good decisions or react quickly enough. This course will describe situations or conditions that lead to fatigue, and how employers and employees can take steps to minimize the possible negative effects of fatigue.	0.25	Intermediate
<b>Financial Management 1: Negotiating Contracts</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the skills needed to price your services to ensure profitability on every job. There is a test at the end. This is the first chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 2 &amp; 3: Pricing for Profits, Generating Cash and Getting Paid</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 2-hour interactive online course helps find new ways to generate cash and get your clients to pay quickly. This is the second and third chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Financial Management 4: Accounting &amp; Cash</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course helps you choose the appropriate type of accounting system to optimize your firm's cash flow. This is the fourth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 5: Strategic Planning &amp; Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you master the strategic planning process and control your financial operations effectively. This is the fifth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Financial Management 6 &amp; 7: Financial Controls, Monitoring &amp; Project Budgeting</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour online course gives you the knowledge you need to choose a budget method that will control your firm's project costs. This is the sixth and seventh chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental



## AEC Complete

Title	Description	Hours	Level
<b>Financial Management 8: Controlling Labor Costs</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you control labor and overhead costs and increase your likelihood of profitability on every project. This is the eighth chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Financial Management 9: Purchasing</b>	Cash flow is the life blood of your firm and lack of cash is the primary cause in 92 percent of all bankruptcies. Increasing cash flow, managing cash, and using cash to your best advantage is as important to your business as superior architecture or design work. This 1-hour interactive online course helps you develop the attributes necessary to create a good purchasing, leasing, and renting system for your firm. This is the ninth and final chapter of the Financial Management for the A/E/C Firm course series from PSMJ Resources, Inc. offered through RedVector.com in its entirety. We strongly recommend that you take all nine chapters of this course series. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Fire Alarm Essentials</b>	In this course we will improve your recognition and comprehension of fire alarm systems and components when you experience them in your work and on-site observations. We have included many photographs to help you visualize the explanations.	2	Intermediate
<b>Fire and Smoke Dampers Simplified</b>	Fire and smoke dampers are essential components of fire and life safety systems of a building. Their operation prevents the spread of fire and smoke and allows building occupants to safely exit a building during a fire. Fire and smoke dampers are also vital to the integrity of fire and smoke rated building assemblies. Improper specifications, installation, actuation or simply the lack of fire and smoke dampers can result in damage to a building or worse, loss of human life. This interactive online course will discuss fire walls, fire barriers, smoke barriers, fire partitions and horizontal assemblies.	1	Intermediate
<b>Fire Essentials and Fire Science</b>	According to the National Fire Protection Association, in 2011, the cost of unwanted fire events accounted for \$329 Billion, or 2.1% of the GDP. Understanding the fundamentals of fire behavior is critical for planners, designers and the construction trades to achieve a safe and sustainable society. Controlling and managing a friendly or hostile fire process or event is a specialty unto itself and requires a strong foundation in fire science for future education and professional development. All fields of engineering and design will be touched by this ever present tool and hazard. This interactive online course will guide you through fire history, simplified explanations of the processes of various types of fires, health risks, and common control and suppression techniques for a hostile fire.	1	Fundamental
<b>Fire Extinguisher Safety</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.73	Intermediate
<b>Fire Extinguisher Safety for Canada</b>	We see them hanging on the wall every day but most people know very little about fire extinguishers. Use this course to educate your team on the fire tetrahedron, the types of fires that can occur in the workplace, and how and when to use a fire extinguisher. This course also describes when to evacuate and provides some proper maintenance tips for fire extinguishers.	0.5	Intermediate
<b>Fire Safety</b>	Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate
<b>Fire Safety Design: Egress &amp; Extinguishing Systems</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 4-hour interactive online course focuses on two important life safety protection features- means of egress and extinguishing systems- in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of each section of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Fire Safety for Canada</b>	This course is intended for Canadian-based companies and individuals and meets Canadian regulations. Every second counts in the event of a fire. In only 30 seconds, small flames can get out of control and turn into a major fire, which can lead to an injury or a fatality. In this course, you will learn about the nature of fire, preventative and protective measures, fire sprinklers, smoke detectors, alarms, fire extinguisher use, evacuation, the stop, drop, and roll procedure, and more.	0.5	Intermediate
<b>Fire Water Systems – Storage, Pumping &amp; Distribution</b>	Having a readily available water supply for firefighting procedures is essential for protecting the health, safety, and welfare of the general public. This means water must be available and accessible in any weather condition. This interactive online course will teach you about water storage systems and design considerations for water sources. You will also learn about water pumping and distribution systems.	2	Fundamental
<b>Fire! Designing Means of Escape</b>	Understanding fire is the first step toward designing features to prevent and protect against it. We cannot eliminate the potential for fire, but we can achieve a high level of fire safety by applying fundamental life safety principles during building planning, design, and operation. This 2-hour online course focuses on one of the important life safety protection features-adequate means of egress-in the context of two of the leading codes used in the U.S. today: the National Fire Protection Association (NFPA®) Life Safety Code, and the International Code Council (ICC) International Fire Code. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>First Aid - Alcohol and Drug Overdose</b>	Alcohol and drug overdoses are serious situations at work. They can lead to poor job performance, workplace violence, severe injuries, and even death. In this course, you'll learn some common types of drugs that can be overdosed on, symptoms of alcohol and drug overdoses, best practices for interacting with someone who's overdosed on alcohol or drugs, and first aid to help the person who's overdosed.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>First Aid - Animal and Human Bites and Scratches</b>	People can receive bites or scratches from small animals, larger animals including livestock and large predatory animals, and even other humans. All of these may be situations that require at least simple, basic first aid, and in some cases they may require additional emergency medical care. In this course, you'll learn the basics of what to do if someone is bitten or scratched by a small animal, livestock, a larger predatory animal, or another person.	0.5	Intermediate
<b>First Aid - Automated External Defibrillator (AED)</b>	In some first aid situations, the victim's heart will be beating too quickly or in an irregular manner. In cases like these, an automated external defibrillator, also known as an AED, can be used to shock the person's heart back into a normal rhythm. In this course, you'll learn when and how to use an AED, including an automatic AED and a semi-automatic AED.	0.53	Intermediate
<b>First Aid - Bleeding Emergencies</b>	There are certain cases when a person is bleeding that are always emergencies. These include extreme blood loss, amputations, abdominal evisceration wounds, sucking chest wounds, and internal bleeding. This course explains the importance of calling for emergency medical assistance in these situations and lists the appropriate steps of first aid to provide.	0.5	Intermediate
<b>First Aid - Breathing Emergencies</b>	People can have difficulty breathing for many reasons; these can be universally referred to as breathing emergencies. Breathing emergencies can be caused by choking, a punctured lung, an allergic reaction, exposure to chemicals or other toxins, asthma, and other causes. In this course you'll learn more about the causes of breathing emergencies, symptoms of breathing emergencies, how to provide first aid, and you'll get guidance on calling for emergency medical assistance.	0.25	Intermediate
<b>First Aid - Broken Bones and Dislocations</b>	Broken and dislocated bones are a common injury in all walks of life, including at the workplace. By following safe work practices, properly guarding hazards, and wearing appropriate PPE, these injuries can be avoided. However, in some cases, broken bones will still occur. In this course you'll learn some different types of broken bones and dislocations and how to provide first aid for them. You'll also get some guidelines for when it's necessary to summon emergency medical assistance to transport the person for additional medical care after first aid is provided.	0.25	Intermediate
<b>First Aid - Burns</b>	Burns are a common occurrence in life, including at work. These may be something as simple as a sunburn or as frightening as a radiation burn. Burns are generally discussed in terms of their severity: first degree, second degree, and third degree. In this course, you'll learn how to prevent burns from occurring at work, how to recognize the degree of a burn, how to provide first aid for different degrees of burns, and how to provide first aid for special types of burns, including electrical burns, burns from chemical spills, and thermal (heat) burns.	0.5	Intermediate
<b>First Aid - Cardiopulmonary Resuscitation (CPR)</b>	If a person's not breathing and their heart is not beating, they can die or suffer permanent brain damage very quickly. In situations like this, it's important to know how to perform cardiopulmonary resuscitation, or CPR. This course explains when and how to perform cardiopulmonary resuscitation. The proper process for providing Hands-Only CPR is also explained.	0.25	Intermediate
<b>First Aid - Dehydration</b>	Dehydration can be a serious health concern and if severe enough, can even be fatal. This course explains ways to stay properly hydrated, explains how people get dehydrated and symptoms of dehydration, and explains first aid techniques for mild and severe dehydration.	0.25	Intermediate
<b>First Aid - Diabetic Emergencies</b>	Diabetes is a disease that is becoming increasingly more common in the United States and in other parts of the world. As a result, the chances that you or a coworker may suffer from a diabetes-related health emergency have increased as well. In this course, you'll get a basic idea of what diabetes is, learn how to recognize symptoms of a diabetes-related health crisis, and will learn some tips for providing first aid to a person suffering from a diabetic emergency, including both high blood sugar (hyperglycemia) and low blood sugar (hypoglycemia).	0.5	Intermediate
<b>First Aid - Eye Injuries</b>	A person's eye can be injured easily while on the job. As a result, safety glasses or similar eye and face protection is important when appropriate. In addition, however, workers should know how to provide first aid for eye injuries suffered at work. This course covers first aid for eye injuries from chemicals, cuts and scratches, and for objects embedded in the eye, and provides general procedures for using safety showers and safety eyewashes.	0.25	Intermediate
<b>First Aid - Fire Ant Bites and Stings</b>	Fire ants are aggressive ants that sometimes bite and sting. This course explains where in the U.S. fire ants are most commonly found and, within those regions, the types of areas you're most likely to find them. It gives tips for bite/sting prevention, and discusses first aid procedures for bites and stings, including first aid for people who are allergic to the bites and stings.	0.25	Intermediate
<b>First Aid - Flying Insect Stings</b>	Flying insects, such as bees, wasps, hornets, yellow jackets, and even so-called killer bees are common throughout the United States. In most cases, they aren't aggressive and they don't seek to sting humans. However, when stings do occur, they're typically minor and require only limited first aid. In other cases, however, especially if the person who's stung is allergic to the sting, or if the person is stung many times, the situation can be quite severe or even potentially fatal. In this course, you'll learn how to avoid being stung by flying insects, what to do if someone has been stung and is having a mild reaction, and what to do in the event of a severe reaction to a flying insect sting, including what to do if the stung person is allergic.	0.25	Intermediate
<b>First Aid - Head Injuries and Concussions</b>	Head injuries are common at work. In some cases, they can be quite minor, but in others, they can be very serious or even deadly. In this course, you'll learn some tips for avoiding head injuries, how to recognize a concussion, how to provide first aid for minor and more serious head injuries, and how to provide first aid if the person has lost consciousness.	0.27	Intermediate
<b>First Aid - Head, Neck, Back, and Spine Injuries</b>	Injuries to the head, neck, back, or spine can be especially dangerous because they can involve damage to the brain or spine, leading to death or permanent paralysis. This course describes the potential severity of these injuries, lists some tips for recognizing potentially serious injuries to the head, neck, back, or spine, and provides first aid tips for these situations.	0.25	Intermediate
<b>First Aid - Heart Attacks and Cardiac Arrest</b>	Heart attacks and cardiac arrest are both health emergencies involving the heart. They are relatively common in America and they can lead to death if the person doesn't get rapid first aid followed up by prompt medical care. This course explains what heart attacks and cardiac arrest are, how to recognize their symptoms, how to provide first aid, and the importance of summoning additional medical care for people suffering heart attacks and cardiac arrest.	0.25	Intermediate
<b>First Aid - Initial Steps</b>	It's not always clear what to do in a situation that requires first aid. Especially if it's an emergency situation. This course spells it out, providing guidelines for what to do in an emergency first aid situation, and the order in which to do them. The course introduces a method called DR. ABC that stands for looking for danger before responding; checking to see if the victim is responsive; checking to see if the victim's airway is clear; checking to see if the victim is breathing; and checking to see if the victim's circulatory system is working. The course also explains the purpose (and limits) of emergency first aid, and the importance of summoning emergency medical assistance. Finally, it provides some general legal information about providing first aid.	0.53	Intermediate

## AEC Complete

Title	Description	Hours	Level
First Aid - Poisoning	The word poison is a general term used to describe a substance that can cause illness or death. Poisons can include many things, including medicines, drugs, household products, workplace chemicals, plant and animal toxins, and gases. Poisons can be ingested, inhaled, injected, or absorbed into the body. This course explains what poisons are, lists some common poisons, gives tips for preventing exposure to poisons, explains the importance of contacting a Poison Control Center in the event of a poisoning, and explains first aid procedures for poison exposures.	0.25	Intermediate
First Aid - Scorpion Stings	Scorpions can be found throughout most of the United States. However, the only scorpion commonly thought to be dangerous to a healthy adult is the bark scorpion, which is typically found in the Southwest. In most cases, a scorpion sting calls for only some minor first aid and perhaps some rest. But bites from a bark scorpion, or bites to children, elderly, or ill people, may require additional first aid. This course explains first aid for a scorpion bite. It also explains where scorpions live and what they look like; gives tips for preventing scorpion bites; and explains the symptoms of scorpion bites.	0.25	Intermediate
First Aid - Seizures	A seizure is caused when there is sudden, abnormal electrical activity in the brain. Causes of seizures include diseases, such as epilepsy, brain injuries, fever, and reactions to drugs. Although most seizures are brief and cause no lasting harm, some seizures may be prolonged, presenting both immediate danger and long-term effects. In this course, you'll learn about the symptoms and causes of seizures as well as first aid to provide a person experiencing a seizure.	0.25	Intermediate
First Aid - Shock	When a person goes into shock, it can be a very serious and even fatal health situation. As a result, this course will explain some reasons people go into shock, list some symptoms of shock, explain first aid to provide to someone in shock, and note the importance of calling for qualified medical assistance to aid someone in shock.	0.25	Intermediate
First Aid - Snake Bites	Bites from snakes of any type can be hazardous and require first aid. This is especially true with bites from poisonous snakes. This course focuses on first aid for bites from the four most common poisonous snakes in the United States: rattlesnakes, water moccasins, coral snakes, and copperheads. Information focuses on snake identification, bite prevention, and proper first aid.	0.25	Intermediate
First Aid - Spider Bites	Spider bites are typically minor issues, but they can be more serious. And that's especially true in the U.S. if the spider is a black widow, a brown recluse, or a hobo spider. In this course, you'll learn basic first aid for minor spider bites. In addition, you'll learn what black widows, brown recluses, and hobo spiders look like; where in the U.S. they tend to live; the kind of areas they're commonly found in; why they tend to bite and how to avoid their bites; proper PPE to wear when in an area they may live in; symptoms of their bites; first aid for their bites; and the importance of calling for qualified medical care if one of these three spiders has bitten someone.	0.25	Intermediate
First Aid - Sprains and Strains	Sprains and strains aren't the most serious injury a person can experience at work, but they are among the most common. This course explains what sprains and strains are, explains the RICE method for treating sprains and strains, and gives tips on when a person with a strain or sprain should seek additional medical care.	0.25	Intermediate
First Aid - Stroke	A stroke is a serious medical issue requiring emergency medical assistance. This course explains some causes and types of strokes, lists common stroke symptoms, introduces the American Stroke Association's F.A.S.T. method for identifying stroke symptoms and calling for first aid, and provides first aid procedures.	0.25	Intermediate
First Aid - Tick Bites	Ticks are small insects commonly found in grassy areas pretty much everywhere in the United States. They bite people and suck their blood; while doing so, they can transmit many dangerous diseases to the person they're biting, with Lyme disease being the most notable. In this course, you'll learn what a tick looks like and where ticks live; how to avoid being bitten by a tick; how to inspect your body for ticks; how to remove a tick from your body if you have been bitten; first aid for tick bites; symptoms of tick bites and serious reactions to tick bites; and tips for seeking medical care after a tick bite.	0.25	Intermediate
First Aid - Unconsciousness	People can lose consciousness for many reasons. This course explains some of the most common reasons, explains the importance of calling for qualified medical assistance, and gives tips for providing first aid.	0.25	Intermediate
First Responder Operations Level Refresher	This course is designed to be a refresher for the Operations Level Responder to Hazardous Materials Incidents, meeting the requirements of NFPA 472 and 29 CFR 1910.120(q). The course is divided into four modules. Each module should take approximately two hours to complete. The first module covers how to survey a hazmat spill or incident; how to collect hazard and response information with MSDSs, labels, and markings; and how to identify the various transport containers and storage tanks used for hazardous materials. The second module covers the chemical and physical properties of materials and their impact on storage and transport containers; response objectives, including how to assess the risk to a responder for each hazard class; and how to determine the suitability of SCBA and personal protective equipment. The third module covers the principles of site management, how to establish and enforce control zones, and tactics for emergency decontamination. It will discuss common types of releases and how to deal with them, and how to conduct defensive operations such as damming and diking and air monitoring. The fourth module covers incident management systems and the first responder's role in a response plan. It will also cover the potential for terrorist attacks, typical agents used in a terrorist event, and the appropriate response tactics.	8	Intermediate
Fixing A Boundary Line: Boundary Control & Legal Principles	Fixing A Boundary Line reviews boundary control and legal principles for professional land surveyors. The course addresses and enumerates many of the legal principles that control the boundary location of real property. Land surveyors play a key role in interpreting and implementing these often confusing principles. This course is associated with another RedVector course by the same author, Boundary Disputes Between Adjoining Owners. Together the two courses provide an excellent overview of some of the most common boundary problems that professionals encounter, with insights into practical solutions. With an emphasis on adverse possession, the course examines legal principles, including prescriptive easements, estoppel, acquiescence, practical location and unwritten agreements. It further explores conditional boundary lines and parol agreements, which are part of unwritten agreements. From these principles the course develops protocols for the professional to follow when encountering difficult situations. It also lists key references to use when a good boundary line solution is seemingly out of reach. The course emphasis is on the surveyor as a professional, as one who uses well-established principles of law to knowledgeably resolve boundary disputes and unexpected challenges.	1	Intermediate
FL Statutes Ch. 489, Part I: Construction Contracting 2 [V.06]	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This 4-hour online course is the second of two courses based on Title XXII, Chapter 489 of the Florida 2006 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>FL Statutes, Chapter 489, Sections 101 - 114: Construction Contracting [V.02]</b>	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
<b>Flammable and Combustible Liquids</b>	This course provides important information on flammable and combustible liquids found in a variety of industrial workplaces. Based on OSHA standards, this course helps raise awareness of the potential hazards presented by common workplace products while offering practical instruction on labeling, storage, handling, and managing spills and waste to help establish safe work habits for yourself and your team.	0.5	Intermediate
<b>Floodproofing</b>	Flooding has caused damage throughout the United States and all areas of the World, ever since man decided to occupy areas adjacent to rivers and lakes. Recent history has shown an alarming increase in the amount of damage being experienced, in spite of the many efforts on the part of various levels of government to guide people out of the floodplains. This 5-hour interactive online course focuses on the floodproofing and/or retrofitting of buildings to keep them safe from flood damage, or at least, reduce their exposure to flood damage. There are several methods that can be employed to reduce flood damages. They include relocation, elevation, dry floodproofing, wet floodproofing, permanent barriers, emergency barriers, sewer backup protection and utilities protection. Very often, a combination of measures is the best choice to provide the most effective and cost-beneficial protection. This course covers all of the above methods of floodproofing. In addition to the types of floodproofing measures available, this course covers the selection issues that must be considered before selecting a measure to employ. These issues include: floodway implications; regulatory agency requirements at the federal, state and local levels, choosing the flood protection elevation; the building uses; human intervention; and the owner's preferences. Design requirements are presented for all of the floodproofing approaches, as well as discussions of required coordination, flood and geologic data implications and permit requirements. Finally, the course discusses the bidding process, contractor selection, and the construction phase of the project through final project approval. There is a test included at the end of each scenario of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	5	Intermediate
<b>Florida - Wind Design and Wind Mitigation Requirements</b>	The Sunshine State is known for its beautiful beaches and tropical weather. Surrounded by warm ocean waters, it is this location that makes it especially vulnerable to severe tropical storms. Winds from these storms can cause severe destruction; therefore, the State of Florida has enacted building regulations to help minimize the damages caused by severe storms. This interactive online course will cover the latest wind design and wind mitigation requirements from the Florida Building Code (based on ASCE 7-10, the 2010 version of the ASCE standard). In this course, we will cover what is applicable in this building code, types of issues covered in the wind design arena, and changes to the wind speed maps. Other issues covered include exposure of a building site, opening protection and enclosure classifications for how to protect a building in wind regions. The code has an alternate all heights method, which will be covered briefly. We will also talk about roof and wall components, and the special requirements for those components in high velocity hurricane zones, or more specifically, south Florida.	1	Fundamental
<b>Florida Building Inspectors: Ethics</b>	Florida Building Inspectors, like other workers upon whom the public depends for impartial assessments, are subject to certain ethical mandates that prohibit conflict between public duty and private interests. This 1-hour interactive online course covers the chapters that apply to building inspectors based upon the Florida Commission on Ethics' Code of Ethics for Public Officers and Employees, Chapter 112, Part III, F.S., and Chapter 468, Part XII, F.S. The course also takes a look at ethical issues that may arise on the job, and gives the guidelines many inspectors use to uphold their own reputations and that of their profession.	1	Fundamental
<b>Florida Construction Contracting: Chapter 489, Section 101-114</b>	The construction business is one of the largest industries in Florida, employing hundreds of thousands of workers who construct residences, businesses, and highways to support the state's tourism industry and growing population. This interactive online course is based on Title XXXII, Chapter 489, Sections 101-114 of the Florida 2009 Statutes, Regulation of Professions and Occupations: Contracting. The purpose of Chapter 489 is to regulate the construction industry for the health, safety, and well-being of the community, and help prevent public financial losses due to unlicensed contracting.	1	Fundamental
<b>Florida Construction Lien Law, Chapter 713</b>	This course covers Chapter 713 Part I of the Florida Statutes which addresses Construction Liens. We have prepared it with contractors, laborers, subcontractors, sub-subcontractors, and materialmen in mind to familiarize you with the core concepts in this Chapter. Our goal is to increase your understanding of the terms and concepts used in Chapter 713 so you are familiar with them when reviewing the text of the statutes for yourself or conferring with your own counsel on Construction Liens. We will review key portions of Chapter 713 and elaborate on them with explanatory notes and commentary. For the full text of each statute please refer to the Florida Statutes. These can be found at: <a href="http://www.leg.state.fl.us/Statutes/">http://www.leg.state.fl.us/Statutes/</a> Because this is an evolving law, you should consult legal counsel with any questions you may have.	1	Fundamental
<b>Florida Engineering Laws and Rules</b>	It is important for engineers to avoid illegal activity or immoral conduct by familiarizing themselves with Florida's laws and rules. The purpose of this interactive online course is to provide engineers with the bare essentials of laws pertaining to their field in the state of Florida. The rules presented here are not intended to serve as a substitute for actual statutes and laws but rather as introductions and summaries of the law per the current Florida Statutes.	1	Intermediate
<b>Florida Landscape Architects' Laws, Chapter 481 (V.13)</b>	This course provides two hours of training for Landscape Architects. The Florida Statutes and Regulations regulating landscape architecture are set forth with annotations elaborating on the concepts contained therein. Multiple-choice questions throughout the course encourage you to review and retain the material. It is crucial you understand the rules governing your profession. The profession of Landscape Architecture in Florida is governed by the Department of Business and Professional Regulation (DBPR). The DBPR has the authority to make rules, administer licensing examinations, set fees and oversee disciplinary proceedings. In this course we will review Chapter 481 of the Florida Statutes and Subtitle 61G10 of the Florida Administrative Code. It is in these two places where the rules and regulations governing the profession of Landscape Architecture can be found.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Florida Laws and Rules for Electrical and Alarm Contractors Based on Published Florida Statutes</b>	This interactive course will review three Florida specific documents. First we'll review Florida Statute 455 General Provisions related to Business and Professional Regulation. Included will be information concerning licensing, examinations, penalties, and address of record. We'll then review Florida Statute 489, Part II, Regulation of Professions and Occupations related to Electrical and Alarm System Contracting. Included will be information concerning definitions, renewals, alarm system agents, alarm confirmations and audible alarms. And last, we'll review Florida Administrative Code 61G-6 related to the Electrical Contractor Licensing Board. Included will be information concerning continuing education, disciplinary guidelines, burglar alarm system agents, and identification cards.	1	Fundamental
<b>Florida Workers' Compensation Law (V15)</b>	Accidents can happen anywhere, even at work. That's why every state in the country, including Florida, has some form of workers' compensation program. It is very important for all employers and employees to know what the law states, and how it relates to them. This 1-hour interactive online course focuses on coverage, construction related exemptions, and other specific construction concerns. This course has been updated according to the 2013 Florida Statutes, Chapter 440 Workers' Compensation. Some of the text of the statute is used in this course, as well as other useful information. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Florida: Building Inspector's Laws &amp; Rules</b>	This informative course thoroughly explores the state of Florida's rules and regulations for building code administrators, building code inspectors and plans examiners. Requirements from Chapter 61G19 of the Florida Building Code Administrators and Inspectors Board are presented as well as a look at Chapter 468 from the Florida Statutes which discusses similar state regulations. In addition, FS Chapter 553 has been added. Chapter 553, Florida Statutes (F.S.), Part IV, is known as the Florida Building Codes Act. This statute addresses building construction standards and provides for a unified Florida Building Code. The information provided will keep any interested building professional informed on the latest licensing, penalty, certification, and education specifications for the state of Florida.	2	Fundamental
<b>Florida: Laws for Surveyors [V.09]</b>	The State of Florida has passed several laws pertaining to surveyors and mappers, which must be followed in their work. This interactive online course discusses these laws and recent changes to these standards, and is intended to provide one of the two required portions of the continuing education requirements (CEU's) for Professional Land Surveyors and Mappers. This course discusses Chapter 177: Land Boundaries, Chapter 472: Land Surveying and Mapping, FL Administrative Code 5J-17.001 - 5J-17.048, Chapter 161: Parts I - IV, and Chapter 455.01 - 455.32: Business and Professional Regulation.	6	Intermediate
<b>Florida: MTS for Surveyors [V.08]</b>	The State of Florida has enacted laws for professional surveyors and mappers that illustrate the minimum requirements for this occupation. This interactive online course discusses the minimum technical standards for surveyors, Florida Administrative Code Chapter 5J-17.050 - 5J-17.052. Professional surveyors and mappers shall abide by these minimum standards, striving to exceed these minimum guidelines when performing their work, and checking their work against these standards to ensure these laws are followed correctly.	6	Intermediate
<b>Flu Awareness</b>	According to the Centers for Disease Control and Prevention, or CDC, 25-50 million Americans get the flu each year. Of those, about 500,000 are hospitalized due to complications. There are tens of thousands of flu-associated deaths each year as well. It is essential for everyone to know how to recognize the symptoms of the flu, as well as how to treat it, when to go to the doctor, and how to prevent from getting it again.	0.33	Intermediate
<b>Forklift Safety</b>	Contains basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. Provides information on the most common types of forklifts used in general industry and warehouse environments. Includes important information required by OSHA's general industry standards (29 CFR 1910.178) as well as best practices on operating powered industrial trucks.	0.73	Intermediate
<b>Forklift Safety for Canada</b>	Give your forklift safety a boost. This course covers basic forklift operating procedures intended to increase safety and help prevent the most common forklift accidents. This course includes important information required by general industry standards as well as best practices on operating powered industrial trucks. This course can be used as an introduction to forklift safety and operation or as a refresher on forklift basics. This training video provides information on the most common types of forklifts used in general industry and warehouse environments; it doesn't cover rough terrain forklifts, aerial work platforms, or forklifts with extendable booms.	0.75	Intermediate
<b>Forklifts - Reducing Product Damage</b>	This course covers the common ways forklift operators cause product damage in a warehouse environment, and recommended practices for avoiding this damage. It is meant to be used as an introductory or refresher course for forklift operators.	0.25	Intermediate
<b>Formaldehyde Awareness</b>	Breathe easy with a better understanding of working safely around Formaldehyde. This course provides information on the history and production of formaldehyde as well as its uses, sources, exposure regulations, the types of formaldehyde, and the effects of exposure to formaldehyde gas.	0.25	Intermediate
<b>Formation Evaluation by Wireline Logging</b>	This course is designed to convey the basics of formation evaluation by wireline logging technique to the construction professionals and learners. Wireline logging operations has a sensitive and critical importance as it deals with complex electronic and mechanical tools, radioactive and nuclear sources. For a new person in this field, it is essential to have sound theoretical knowledge about formation evaluation by wireline logging techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and tools, he/she may not be recommended for any field work. This course is important to impart basic knowledge of wireline logging to assist drilling operation and formation evaluation; it also covers basic earth formation parameters and calculations.	1	Fundamental
<b>Fracking: Environmental Consequences</b>	Hydraulic fracturing is done with surprising precision and with an eye on the environment, yet it is interesting how the public reacts to the practice in relation to other techniques used throughout the world. Valid points are made on both fronts. The major concern against fracking resides in the overall health and well-being of people close to a well site, as well as the land, water, and air that might be adversely affected. With proper examination and logic, this course was developed to provide insight and reason in a practice fueled by profit for some and by civil concern for others. We will explore the history, public and media perception, and environmental and economic impacts. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>From Project Manager to Principal 1: Foundations of Management</b>	<p>The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, and great expertise within each area. The leader who has excelled while dealing directly with projects and design issues must now learn to deal indirectly with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the first chapter of the From Project Manager to Principal course series, and explores the tools each business person needs to develop into a successful manager. Concepts such as transitioning from project developer to a management position, behavior changes, self evaluation and leadership qualities are discussed. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>From Project Manager to Principal 2: Marketing Your Services</b>	<p>The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the second chapter of the From Project Manager to Principal course series. The focus of this course is the importance of marketing to project management and the overall success of your business. The material presented will help you better understand the project manager's role in creating winning proposals and successfully marketing your services. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>From Project Manager to Principal 3: Negotiation Outcomes &amp; Strategies</b>	<p>The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the third chapter of the From Project Manager to Principal course series. This course explores the art of negotiation between a firm and a client and the vital role that project managers play in the discussion process. Key concepts such as negotiation strategies, scope, and compromise are presented to help you better understand how to reach a mutually beneficial agreement with your clients. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>From Project Manager to Principal 4 &amp; 5: Manpower &amp; Quality</b>	<p>The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course covers the fourth and fifth chapters of the From Project Manager to Principal course series, and it begins with a look at creating your work force. Important strategies for hiring, interviewing and managing your employees are presented. The course concludes by discussing the importance of quality management and outlines how to create an effective quality control program. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>From Project Manager to Principal 6: Financial Management</b>	<p>The evolution to senior management requires both a broad range of skills, including marketing, financial management and leadership, as well as great expertise within each area. The leader who has excelled while dealing with projects and design issues must now learn to deal with people issues and leadership challenges. This course series developed by PSMJ Resources, Inc. and offered through RedVector.com in its entirety, tutors the newly minted executive in every aspect of these new skills, including strategy, team development, financial management, and more. This 1-hour interactive online course is the sixth and final chapter of the From Project Manager to Principal course series. This course looks at the financial responsibilities of the project manager. Topics such as choosing the appropriate accounting method and improving cash flow are presented. The course also includes an in depth look at over 100 ways to cut overhead costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Frost's Survey- A Dave Gibson Metes and Bounds Case</b>	<p>This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for METES AND BOUNDS parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Metes and Bounds Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	2	Intermediate
<b>Fuel and Combustion Systems Safety - Business Contingency Planning</b>	<p>Welcome to Fuel and Combustion Systems Safety - Business Contingency Planning. Everything presented in this course is focused on helping you to reduce the probability and severity of a fuel or combustion system accident. However, nothing can bring all of this to zero risk. For example, there will always be things beyond your control, such as weather events. This course will help you to respond in an effective and timely manner and to know something about what to expect should there be an incident at your facility. Posted by arrangement with John Wiley &amp; Sons, Inc. Copyright © 2013. All rights reserved.</p>	1	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - Combustion Basics</b>	Welcome to Fuel and Combustion Systems Safety - Combustion Basics. In this course we lay a foundation for more complete technical understanding of fuel systems and combustion equipment. If you've been associated with this world, there may be little here that is new. If not, this is a course you may refer to over and over again in your career. The information in this course is out there in many forms and places. We will define combustion, review fuels, and explore the fire triangle. You'll get combustion chemistry and how to apply it to burner systems. We'll delve into environmental emission issues, basic burner design issues, and draft systems. We'll cover flames and instruct you in where to look and what to look for as well as fuel/air ratios evaluations. Throughout the course you will be given real-life stories so that you can see the practical applications for what you are learning. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Equipment It's intuitive that controlling equipment risks involves regular safety testing and maintenance of equipment. However, much of the safety and risk management of fuel-fired equipment needs to occur in the design and specification of equipment, along with its installation and commissioning. In this course we address these issues as well as ongoing safety device testing requirements. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: People</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: People. This course focuses on one of the three key concepts found to form the basis of long-term sustainable fuel and combustion system safety: people, policies, and equipment. These are the three legs of a three-legged safety and risk management approach. Any successful program must contain elements of each to be successful. The people piece involving controlling human error is among the most important. Human error has been the leading cause of many fuel and combustion system accidents. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies</b>	Welcome to Fuel and Combustion Systems Safety - Controlling Combustion Risks: Policies. There comes a time in the life of a fuels and combustion equipment safety and risk management program when thought must be provided to make things sustainable. The immediate fixes must become institutionalized. Knowledge-based practices need to become rule based. In this course 10 important concepts are summarized, reinforced, and framed in an approach for developing sustainable policies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning</b>	Welcome to Fuel and Combustion Systems Safety - Gas Piping Repairs and Cleaning. In this course we provide advanced concepts for facilitating the safe repair and cleaning of gas piping systems. Some of the most significant and horrific tragedies have come about from mistakes made in preparing gas piping for maintenance, bringing gas piping back into service, and trying to clean gas lines. The concepts presented in this course need to be made the subject of policies and practices with both designers and maintenance staffs. A section at the end of this course highlights a relatively new standard, NFPA 56, Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems, which is central to this topic. It took many months of meetings with contributions from over a dozen experts to write NFPA 56. This is a very important and ground breaking piece of work that applies directly too many of the concepts presented in this course. Anyone who does or oversees activities related to gas line repairs and cleaning must become familiar with this standard. This course is not a design guide or a how to for gas line purging and cleaning. Each site and its circumstances and conditions are different, and nothing here should be seen as a replacement for sound engineering judgment and the requirements prescribed by applicable codes. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Fuel and Combustion Systems Safety - Gas Supply System Issues</b>	Welcome to Fuel and Combustion Systems Safety - Gas Supply System Issues. Once natural gas piping is inside a facility, it is pretty easy to look up, see it marked, and understand what it is. Many people don't quite understand how the gas might have gotten there. It's important to know where the gas came from, who owned it and at what point, how the pressure got controlled, and how to shut it all off if necessary. In this course we also discuss alternative fuel considerations, such as propane, landfill, or digester gas service issues. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Global Perspective on Fuel and Combustion System Risks</b>	Welcome to Fuel and Combustion Systems Safety: Global Perspective on Fuel and Combustion System Risks. It's a big world out there and combustion equipment is everywhere. You can learn a lot by seeing what the state of the art is and is not in both developed and developing countries. This course provides insights from such experiences. You will see the good, the bad, and the ugly so that you can take advantage of them all without the pain that others have experienced to gain this knowledge. This course is especially important if you operate equipment in developing countries. This can be an entirely different experience and one that requires considerable thought about fuel choices, installation issues, and training of staff. To be successful your focus has to be on simplicity. Real-life stories in this course communicate this clearly. Don't be fooled by the title of the course. There's information here that applies for equipment operated anywhere. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Natural Gas Piping Basics</b>	Welcome to Fuel and Combustion Systems Safety - Natural Gas Piping Basics. Combustion systems start with fuel systems and fuel systems start with piping. By far the most common fuel burned throughout the world is natural gas. Natural gas use is growing even more in popularity as the United States develops shale gas deposits. For this reason the primary focus of this course is piping related to natural gas systems. Before we discuss advanced gas piping concepts it's important to review the basics. In this course we attempt to discuss the most basic natural gas related piping concepts starting with the piping itself, how it's made, and how it's installed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks</b>	Welcome to Fuel and Combustion Systems Safety - Understanding Boilers and Their Special Risks. The potential for catastrophes is much greater for boilers than for any other category of combustion equipment, because there is a twofold risk, fuels and saturated water/steam. Heating water in boilers or hot water heaters, is by far the single biggest application of heat energy and fuel trains on the planet. In the United States alone, a 2005 study indicated that there are over 163,000 commercial and industrial boilers. There are millions of residential boilers and hot water heaters as well. In this course we describe different boiler types and also provide insights into some of the hazards associated with steam systems, including safety relief valves and steam piping. Throughout the course Subject Matter Expert John R. Puskar will provide real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Fuel and Combustion Systems Safety - What You Don't Know Can Kill You!</b>	Welcome to Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! In this course we will cover the safety aspects of fuel and combustion systems. We will explore the gaps in the knowledge of people responsible for system safety. You will get instruction in developing safe environments, codes and standards, and the organizations that publish the codes. We will also review risk assessment and the insurance industry. You'll also receive information on the possibility of personal criminal liability. Throughout the course you will be given real-life stories and the lessons learned from them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Fundamentals of Asphalt Pavement Design</b>	This training presents the fundamentals of asphalt pavement design. This course will introduce asphalt pavement systems, as well as asphalt pavement materials and their properties. The characteristics of asphalt concrete are presented, followed by description of the properties of asphalt pavements. A review of current asphalt concrete mix design methods is presented. The elements of the structural design of asphalt pavements will be discussed in detail. This includes the AASHTO method for determining layer thicknesses. This course will enable pavement engineers, materials engineers as well as materials technicians to gain a better understanding of the fundamentals of the asphalt pavement design process and analysis. Examples and sample calculations are included throughout this course.	2	Fundamental
<b>Fundamentals of Business Crisis Management</b>	In LearnSmart's Business Crisis Management Video Training, you'll learn the steps to take before, during and after a crisis, which will help determine your company's outlook once the storm has passed. In addition, you'll learn the tools for anticipating business crises, and processes for developing crisis management capabilities -- particularly, how to develop a crisis management plan.	2.5	Intermediate
<b>Fundamentals of Petroleum Engineering</b>	This course is designed to convey the basics of the oil and gas industry to the Construction Professional. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature, and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about oil and gas operations before getting started.	2	Intermediate
<b>Furnace Fundamentals</b>	An important part of an operator's job when working with any furnace is to make sure that the furnace is running efficiently in order to save fuel, maximize the amount of heat that is produced, and minimize the amount of heat that is wasted. More importantly, careful furnace operation helps prevent explosions, injury, and damage to equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Furnace Introduction</b>	Furnaces are an important source of heat for many industrial facilities. Furnaces, which can also be referred to as fired process heaters, are basically enclosed structures that produce heat by the combustion of fuels. This course will review the major components that make up furnaces, explain how combustion takes place inside a furnace, and identify the different flow paths inside a furnace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Fuses</b>	This course introduces participants to the basic components of various types of fuses, explains how fuses are rated and sized, and describes basic procedures for troubleshooting a cartridge fuse.	1	Intermediate
<b>Gabions - Design of Retaining Walls</b>	Gabions are a common method of construction for retaining walls. They can be less expensive and more aesthetically pleasing than concrete retaining walls. This 2-hour interactive online course contains guidance on how to design gabion retaining walls. The text of this course is taken from a design guide provided by Modular Gabion Systems, a manufacturer of gabions. Several design examples are provided to aid the student in understanding the design process. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Gas Pipelines - Public Awareness</b>	Gas pipeline safety is critical - not just for your employees but for public safety as well. Therefore, it is imperative that gas operators have an effective awareness program to inform the public; public officials; emergency responders; as well as excavators as to the location and safe work practices around gas pipelines and what to do in an emergency. This course details Title 49 CFR 195.440 and will help operators of both natural gas and hazardous liquid pipelines to develop and implement public awareness programs consistent with the regulations and API RP 1162.	1	Intermediate
<b>Gears - Overhaul</b>	The purpose of this course is to provide participants with an overview of gearbox disassembly and reassembly. Replacing damaged gearbox components is an important part of a maintenance technician's job. Understanding how to safely and properly disassemble and reassemble a gearbox is essential to any gearbox repair or overhaul. At the completion of this course, participants will be able to describe checks, measurements, and installation procedures for gearboxes.	1	Intermediate
<b>Gears - Types and Characteristics</b>	Gears are found in many types of equipment in industrial facilities. They are vital components, and a gear problem can cause a whole operation to come to a complete stop. This course covers what gears are, how they work, and different types found within industry. It also provides an overview of problems that may affect gears and how to prevent them.	1	Intermediate
<b>Gender Identity: Changes Organizations are Making to Increase Awareness</b>	Gender identity awareness is necessary to ensure equal respect and fair opportunities for everybody. So what does this mean for your organization? While every entity is unique and should consider the needs of their individual workforce, this course provides some basic steps you can take to better increase gender identity awareness.	0.2	Intermediate
<b>Gender Identity: Understanding Gender-Neutral Restrooms in the Workplace</b>	A gender-neutral restroom is, when we think about it, a simple idea. We use them in our homes without a second thought. However, in a workplace environment they are a topic of debate. This course will help you understand why gender-neutral restrooms matter and how they work.	0.2	Intermediate
<b>Gender Identity: What does LGBTQIA+ mean?</b>	When discussing gender identity and sexual orientation it's common to hear acronyms used to reference different groups, orientations, and identities. For several years, the most common acronym was LGBT, however to be more inclusive the acronym has evolved into many different forms. In this course we'll help you understand the pieces that make up the LGBTQIA+ acronym.	0.2	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>General Electrical Hazard Awareness for Site Safety</b>	Electrical safety is essential for all businesses. Understanding necessary electrical standards and compliances is essential for keeping your employees and your site safe. Has your organization defined what electrical risks you may have? Are you fully in compliance? Do you have all the proper electrical personal protective equipment needed? If OSHA audited your site today, would you have any electrical safety violations? This interactive online course is geared towards all businesses regardless of industry and will focus on what you need to know as well as useful tips and best practices regarding overall general electrical safety within your organization.	1	Intermediate
<b>Generating Electricity</b>	This course is an introduction to the basics of generating electricity and covers the primary types of generation used today. The main pieces of equipment used in electricity generation are covered, as well as how generation is managed to meet demand from customers.	1	Fundamental
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Datum Selection and Interpretation</b>	When using geometric dimensioning and tolerancing (GD&T) to describe a part, you often need to specify the orientation or location of a part feature with reference to other features on the part. From the perspective of a designer, two things must be kept in mind. First, you must communicate to the manufacturer or inspector how to treat imperfect features when making or measuring a part. Second, you must communicate the functional intent of the part. In this interactive, online course, you will explore datum selection and notation so you can learn to communicate these requirements.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Form and Size Tolerances</b>	Geometric dimensioning and tolerancing (GD&T) is a symbolic language used to communicate the allowable variation within a product assembly and standardizes variations in measurement. Size tolerances define the allowable variation in the size of a feature, while form tolerances describe the allowable variations in the contours of features and surfaces on a part. In this interactive, online course, we will discuss size tolerances, and form tolerances, as well as cylindricity, and circularity.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Introduction</b>	GD&T is a symbolic language that is used to accurately describe mechanical parts and to define the allowable deviations in size, form, and location for each feature, in a manner that allows the greatest flexibility for the manufacturer, while ensuring that the part will function as intended. This interactive, online course provides an introduction to GD&T fundamentals and basic notations.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Orientation Tolerances</b>	In Geometric Dimensioning and Tolerancing (GD&T), an orientation tolerance is used to control the parallelism, perpendicularity, or angularity of a part feature with respect to a frame of reference (defined by the datum references). This interactive, online course discusses the three different types of orientation tolerances: Parallelism, Perpendicularity, and Angularity and how they are communicated in GD&T.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Position Tolerances</b>	GD&T position tolerances and dimensions define where features are located on a part with respect to other features. Position tolerances are typically used on holes, pins, tabs, slots, and other features of size. They are particularly useful when dealing with patterns of holes. This interactive, online course will discuss the use of GD&T for positional tolerances. It will also discuss bonus tolerance and functional gauges, as well as special considerations for positional tolerances.	0.25	Intermediate
<b>Geometric Dimensioning and Tolerancing (GD&amp;T): Profile and Runout Tolerances</b>	Profile tolerances are typically used on irregular surfaces where flatness and position tolerances are insufficient to describe the part requirements. Runout tolerances are typically applied to rotating parts to maintain the form and location of features with respect to their bearing surfaces. This interactive, online course will show you how to properly apply and interpret profile tolerances for both surface and line elements, how to reference datums and apply basic dimensions to describe features, and how to use composite profile tolerances to reflect specific feature requirements.	0.25	Intermediate
<b>Geothermal Heat Pumps</b>	This 2-hour interactive online course is an overview of geothermal heat pump systems. The course covers the basics of how a heat pump works and the specific differences between an air source heat pump and a geothermal heat pump. The benefits of using geothermal are discussed as well as the costs including installation costs, energy cost, and maintenance costs. Issues such as how to select the most appropriate antifreeze solution are discussed along with the merits of each type of loop system likely to be used in a geothermal application. There is a test included at the end of this course to assess the student's understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Get It Done: Managing Email</b>	Take Control Of Your Inbox! For many people email is a source of stress, when it really should be a valuable productivity tool. In this course we'll show you how to combine email best practices with the tools in Microsoft Outlook in order to effectively manage your email.	1	Fundamental
<b>Get It Done: Sharing Calendars</b>	How Do You Let Everyone Know Whats Going On? Its a common situation: youre working in an organization or department, and you need to share a calendar with your team. Whether its staffing schedules or company holidays, this course will demonstrate ten different ways you can share a calendar among your coworkers, including both physical (printed) and online calendars.	1.5	Fundamental
<b>Get SMARTER with Goals</b>	What is the difference between someone who simply has goals and someone who actually achieves their goals? The key isn't to work harder, it's to work SMARTER! The SMARTER goal setting system is the evolution of the SMART goal setting system that was introduced in the 1980's. In this course you will learn how to apply the S.M.A.R.T.E.R. goal setting system. You will understand the definition of each letter of the acronym S.M.A.R.T.E.R. and view real world examples of how it is applied to goal setting. In addition, you will have the opportunity to apply it to set your own goals and apply the methodology. Finally, you will be provided with additional strategies for achieving your goals.	0.5	Intermediate
<b>Giving Feedback that Gets Results</b>	Tired of giving feedback that falls on deaf ears? Learn how to give feedback that gets fantastic results with this effective leaders guide. Feedback can be much more than a criticism at the end of an event, in fact feedback can be both positive and negative and needs to be given not only strategically, but also consistently. Develop the skills to do exactly that through application exercises and a rich multimedia process.	0.75	Intermediate
<b>Gmail Essentials 2015</b>	Power Your Gmail Account. Get The Maximum Benefit From All The Tools Gmail Has To Offer. Gmail Is One Of The Most Often Used, Under-Utilized Applications In The World. This Course Will Change The Way You Use Your Gmail Account - Guaranteed!	2.25	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Going Green with BIM and GIS</b>	The goal of sustainable design is to create healthy environments through environmentally responsible planning and development. Geographic Information Systems (GIS) and Building Information Models (BIM) are both sophisticated technological tools that provide information in a more efficient and readily available manner than traditional design tools (e.g., CAD, maps). Traditional tools prove too costly, too time-consuming, and do not contain sufficient information for environmentally focused assessments and performance analysis. This interactive online course will expose planning, design, and construction professionals to the importance of using Building Information Models (BIM) and Geographic Information Systems (GIS) to work collaboratively throughout projects and to help professionals develop a thorough understanding of how these technological tools provide critical information when making sustainability decisions. GIS and BIM allow project team members to answer questions and solve problems by warehousing data that can be quickly analyzed and easily shared. Both GIS and BIM allow for providing consistency in coordinating changes for the design team and allow advanced visualization before project siting (GIS), design, or construction (BIM) has taken place.	2	Intermediate
<b>Grading and Drainage Design of Modern Roundabouts</b>	Modern roundabouts are a proven and effective safety improvement for roadway intersections. The main focus of roundabout design documentation has been in its traffic capacity and geometry. Once these features are set, the vertical design (grading and drainage) becomes the most critical portion of the design execution and the main component in determining the construction cost of roundabouts. In this interactive online course, engineers, architects, planners and contractors will learn design techniques and best practices to develop efficient roundabout grading and drainage designs.	1	Advanced
<b>Green Building Materials: An Introduction</b>	Growing concern over the future of our planet makes Green Building Materials: An Introduction a must for any professional in the AEC industry. This 3-hour interactive online course advocates the environmental benefits of green building materials by introducing you to the positive effects of building with environmentally friendly products, made especially with the future in mind. You will learn about green building materials and why they are important not only to the environment, but also to humans because they prevent future health problems caused so often by toxic chemicals. You'll also learn about the economic benefits, common misconceptions, consumer demand, professional responsibilities, and the look of green material. This is the first of two courses in a series on green building material.ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 3 hours of credit toward the required continuing education. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Green Building Materials: Product Selection &amp; Specification</b>	Selecting the right green building material for your project and then actually incorporating it into your design can sometimes be an overwhelming process. However, with the resources and step-by-step procedures detailed in this 4-hour interactive online course, you'll have a better understanding of where you can find answers to your questions about green materials, which materials are right for you, and how the construction process actually works. This course introduces you to the green building products selection process, product specification process, and the construction process. It also includes a detailed conclusion that summarizes both the history and future of green building materials. This is the second course in the two-part series, Green Building Materials. This course includes a multiple-choice test at the end of each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Green Building Technology for Home Inspectors</b>	This presentation applies to the application of green building technology for house construction and housing components. It will give you a brief overview of how they work and how they are applied including installation and components. We'll talk about the history and the background of green technology, building envelope and modifiers, controlling moisture and temperature, ICFs and SIP-type construction. ICF being insulated concrete forms and SIP being structurally insulated panels, radiant barrier technology, solar, passive and photovoltaic, insulation technology, tankless water heaters, which are all considered green components in the green technology purview.	2	Fundamental
<b>Green Building with Steel - Part 2: Guidelines for Builders, Trades and Inspectors</b>	Green Building is rapidly becoming mainstream. Are you ready to meet the demands? Are you recommending and using steel as a primary structural building material? Do you know steel's level of recyclability and efficiency of assembly. This interactive online course will teach you Green Building using steel, with a focus on Cold-Formed Steel Framing. You'll get what you need to know the key elements that make up steel framing; plus you'll get techniques to fit plumbing and electrical components. This is the second course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED RatingsLight Gauge Metal Components for FramingFraming With Steel StudsInsulation and WaterproofingErecting an Engineered Steel HouseCommercial Applications	2	Intermediate
<b>Green Building with Steel - Part 3: Light Gauge Metal Components for Framing</b>	The use of steel as a primary structural building material is rapidly becoming mainstream in Green Building. It is inherently recyclable and easy to assemble. You can become an expert very quickly. This interactive online course will teach you to use steel in green building. You'll learn about structural and non-structural steel walls, steel wall components, details of assembly, steel flooring systems, and fasteners. This is the third course in the Green Building With Steel series. Additional courses are: Material Attributes, Applications, and LEED RatingsGuidelines for Builders, Trades and InspectorsFraming With Steel StudsInsulation and WaterproofingErecting an Engineered Steel HouseCommercial Applications	2	Intermediate
<b>Green Building with Steel - Part 4: Framing With Steel Studs</b>	It makes more sense than ever to use steel as a primary structural building material. It is inherently recyclable and efficient to assemble. That makes it your best choice for sustainable building material. In no time you can be the local expert in green building with steel. This interactive online course gives you Green Building with a particular focus on framing with steel studs using Cold Formed Steel (CFS) and the various methods of building exterior and interior frames. This is the fourth course in the Green Building With Steel series. Additional courses are: Material Attributes, Manufacturing, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Insulation and Waterproofing Erecting an Engineered Steel House Commercial Applications It is helpful to you to take the first three courses in the Green Building With Steel series before beginning this one.	3	Intermediate
<b>Green Building with Steel - Part 5: Erecting An Engineered Red Iron Steel House</b>	Steel as a primary structural building material with its inherently recyclable nature and its efficiency of assembly is the logical and responsible choice for Green Building. You can become an expert in erecting a Red Iron steel frame house and you can learn how to earn the coveted LEED points for your project. This interactive online course provides you with the benefits of building with red iron steel as well as instructions for constructing floors, walls, and roofs. You also get information on secondary framing and finishing. Lastly you receive what you need to qualify for LEED certification. Other courses in this Green Building With Steel series provide additional information on the application and technical aspects of Steel Design and Construction. Material Attributes, Applications and LEED Ratings Guidelines for Builders, Trades and Inspectors Light Gauge Metal Components for Framing Framing With Steel Studs	4	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Green Building: Commercial High Performance Guidelines Part 1</b>	What is a high performance green commercial building? Why build one? This interactive on-line course answers those questions and much more. This course is Part 1 of a 2-part course that gives you the methodologies to plan, design, and build high performance, green commercial buildings. You'll get guidelines and processes to apply specifically to commercial and municipal construction. You'll start with the basics of sustainability and progress through designing new construction or renovating existing structures.	5	Intermediate
<b>Green Building: Commercial High Performance Guidelines Part 2</b>	Do you know the new methodologies that form the underpinnings of high performance commercial and municipal buildings? This course will give them to you. This is the second installment of a two-part series in designing high performance green commercial buildings. This online, interactive course gives you the principles and practices for designing new buildings and redesigning existing frameworks. You'll learn to maximize operational energy savings; improve comfort, health, and safety of occupants and visitors; and limit detrimental effects on the environment. We recommend you complete Commercial Green Building High Performance Guidelines - Part 1 before you begin this course.	4	Intermediate
<b>Green Design: Biophilia and the Human Affinity for Nature</b>	If you love life and the living world, you're experiencing biophilia. There's a new facet to design that is based on the biophilia hypothesis. It's called biophilic design. Incorporating this concept will enrich your designs, reconnect us with nature, and improve the wellbeing of the natural world and the human population. In this interactive online course you'll get the research supporting this concept, design strategies that you can use in your work, and case studies.	3	Fundamental
<b>Green Design: Brownfield Redevelopment (RV-10900)</b>	Brownfield is used to describe land that is abandoned or underused out of concern that the land is contaminated. There are a variety of estimates that claim there are anywhere from 450,000 brownfields to over 5 million acres of abandoned properties throughout the US alone. These properties are sited in every metropolitan city in the U.S. as well as in rural America creating major urban infill opportunities. This interactive online course gives you a better understanding of what brownfield is, where it came from, where it still exists and with the help of USGBC and LEED, the multitude of Federal, State and local initiatives that surround brownfield redevelopment.	1	Intermediate
<b>Green Design: Economics of Green Building</b>	In this course we will present an in-depth study of the perceived and actual costs associated with green building. You will get an overview of the federal, state, and local tax credits available; life cycle cost analysis; and business incentives to go green. We will also review a couple of case studies.	2	Intermediate
<b>Green Design: Introduction to High Performance Building Design (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. In this course, we will look at the ways buildings use energy and how buildings can be designed for high energy performance. It is important that architects and designers understand and are aware of the resources and methods available for improving building designs in the future. A major piece to understanding sustainable building design is also understanding the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	3	Fundamental
<b>Green Design: Introduction to Indoor Environmental Air Quality (Based on LEED v4)</b>	There is consensus among the majority of scientists that the climate of the earth is changing in the direction of higher temperatures and that some of the change is anthropomorphic (caused by human activity). This course is intended to address that portion of the human contribution to climate change that is related to energy use in buildings. At the conclusion of the course, you should be able to understand the ways buildings use energy and how buildings can be designed for high energy performance. You should be aware of activities and plans for improving building designs in the future. You will have an understanding of the requirements of the Energy and Atmosphere category of LEED v4 Building Design and Construction (BD+C).	2	Fundamental
<b>Green Design: Introduction to Sustainability and Measurement Systems (Based on LEED v4)</b>	In this course, we will discuss the concept of sustainability and the need for ways to measure the sustainability of a building design. In addition, we will describe the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C), Neighborhood Development (ND), Homes (H), Building Operation and Maintenance (O&M), and Interior Design and Construction (ID+C) rating systems and the goals each strives to achieve. We will also outline for a prospective candidate the process of becoming a LEED Accredited Professional and lastly we'll compare other rating systems to the USGBC system.	1	Fundamental
<b>Green Design: Introduction to Sustainable Design Materials and Resources (Based on LEED v4)</b>	This course provides an introduction to the study of those materials and techniques that are both ecologically efficient and ecologically effective. After completing the course, you should have an understanding of: Characteristics of sustainable materials. The concepts of life cycle, embodied energy, and embodied carbon are introduced. The benefits of using sustainable materials. Environmental, economic, social, cultural, and aesthetic opportunities are discussed. Selecting a sustainable material selected. Techniques, databases, and organizations are introduced. Using sustainable materials. design for building and material reuse, construction waste management, and Leadership in Energy and Environmental Design (LEED) Materials and Resources (MR) credits are discussed.	2	Fundamental
<b>Green Design: Introduction to Sustainable Sites (Based on LEED v4)</b>	This course provides students with the conceptual foundation necessary for exploring many aspects of environmentally progressive site design. Aspects of site sustainability covered in the course include water, solar environment, natural ventilation, transportation, and civic patterns. Each is considered at a variety of scales ranging from the individual parcel to the neighborhood and placed within larger regional and global contexts. In this way, students are equipped to immediately begin making ecologically informed decisions about the site design of their projects, while simultaneously preparing themselves for further, more detailed study of various issues related to site sustainability. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Green Design: Introduction to Sustainable Water Systems (Based on LEED v4)</b>	The goal of this online interactive course is to introduce you to a perspective on development and design practices that help professionals support communities in managing and sustaining use of local water resources. It is often said when discussing sustainable practices that people need to think globally and act locally. This is especially true when dealing with water resources. Unlike any other resource, water cycles through the earth's environments at global and continental scales, but each step of that journey serves as a highly valued local resource. This course will discuss a sustainable approach to water use and management in buildings, sites, and campuses. It systematically introduces key concepts that help practitioners understand the larger watershed and community water systems that local development practices impact, and the cultural, social, economic, and health benefits communities derive from earth's water systems. This course also introduces the consequences of conflicts between current development practices and these water systems and emerging developments practices that work better with, and have a lower-impact on, watershed systems. Brief overviews of LEED-BD+C v4.0 credits that contribute to improved water quality, reduced water use, management of local stormwater and groundwater resources are included to help orient professionals to practices they may wish to learn more about. Lastly, the author provides some examples of how strategies introduced in the lesson can contribute to and express the natural, cultural, social, and aesthetic character of places.	2	Fundamental
<b>Green Design: Sustainability and Historic Preservation</b>	Do you think of historic preservation when you think of sustainability? You should. Reuse and rehabilitate existing buildings as part of your overall sustainability goals. You'll save money, generate revenue, and make beautiful, long-lasting investments in the future. This interactive online course illustrates the metrics commonly applied to sustainable design but with an eye towards the reuse of buildings individually and in commercial and residential districts. In particular, we will show you how to read the built environment and pick out the precedents that led to contemporary practices like transit-oriented design, new urbanism, and smart growth.	6	Intermediate
<b>Green Design: Sustainable Daylighting Design (Based on LEED v4)</b>	Daylighting can be one of the most difficult tools in the lighting designer's toolbar. Adding sustainability into the mix carries its own considerations and obstacles. But you can become a master at sustainable daylighting design. In this course, we will concentrate on pragmatic daylight design and how sustainable daylighting elements can be used efficiently in lighting design projects. You will get instruction in and see examples of daylighting designs that are functional, beautiful, and worthy of LEED credits.	1	Intermediate
<b>Green Design: The Ethics of Green Design</b>	Green design is an evolutionary process—every day designers, engineers, academics and other innovators continue to expand the constellation of green design materials and techniques. No set of professional standards could ever be exhaustive enough to deal with every conceivable scenario. Therefore, a holistic ethical understanding of green design is necessary, as is an ability to embrace the constant change inherent to the industry. This course will cover ethical concepts and codified professional ethical standards as they relate to green design, as well as topical environmental and group functionality issues.	1	Fundamental
<b>Green Infrastructure 1: Introduction to High Performance Guidelines</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure. This interactive online course gives you the facts about why Green is cost effective, healthy and visually appealing. In this course you will find current examples of successful Green applications as well as principles and practices that you can use to develop your own comprehensive plans. This course is the first of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. It is recommended that you take this course prior to the other courses in the series: Green Infrastructure 2: Best Practices for Site Assessment Green Infrastructure 3: Best Practices for Streetscape Green Infrastructure 4: Best Practices for Pavement Green Infrastructure 5: Best Practices for Utilities Green Infrastructure 6: Best Practices for Stormwater Management Green Infrastructure 7: Best Practices for Landscape Green Infrastructure 8: Best Practices for Construction Practices Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Infrastructure 2: Best Practices for Site Assessment</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course is the second in the series and gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Soil testing Hydrologic and hydraulic analysis Vegetation assessment, preservation, and transplantation Invasive species evaluation	1	Intermediate
<b>Green Infrastructure 3: Best Practices for Streetscape</b>	Infrastructure is the complex, interdependent system that supports our way of life. You can take advantage of a wide range of opportunities to build and re-build a Green Infrastructure - if you have the right template. This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This 2-hour interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. Topics covered are: Working with community groups Attractive Streetscapes safe for pedestrians and vehicles Improvements that promote good health in cities Upgrades that are cost-effective and sustainable Changes that provide for increased security	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Green Infrastructure 4: Best Practices for Pavement</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Pavement lifecycle Pervious vs. impervious pavement Albedo or Reflectivity of pavement Pavement materials A materials program Material applications	3	Intermediate
<b>Green Infrastructure 5: Best Practices for Utilities</b>	This course is one of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts applicable to cities and municipalities. This interactive online course gives you the information and action items for assessing sites and identifying opportunities to implement Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Mechanisms to affect right-of-way construction by private utilities Technology to minimize pavement damage and degradation Upgrades to utility installation and maintenance	1	Intermediate
<b>Green Infrastructure 6: Best Practices for Stormwater Management</b>	This course is the sixth of an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Integrated stormwater management planning Water pollution prevention Construction runoff prevention Surface pretreatments for filtering runoff Catch basin inserts and water quality inlets Detention and Infiltration structures Constructed wetlands	3	Intermediate
<b>Green Infrastructure 7: Best Practices for Landscape</b>	This course is seventh in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 3-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Citywide landscape planning Maintaining and enhancing biodiversity and ecology Landscapes capable of high rates of stormwater absorption, infiltration, and treatment Tree planting for quantity, density and diversity Turfgrass reduction Plant selection Designing water-efficient landscapes Pest Management	3	Intermediate
<b>Green Infrastructure 8: Best Practices For Construction</b>	This course is the last in an eight course series on Green Infrastructure that provides a template for design and implementation of Green Building concepts as they apply to cities and municipalities. This 1-hour interactive online course gives you the information and action items to assess sites and identify opportunities to use Best Management Practices (BMPs) in Green planning, design and construction. You'll get: Site Protection Plan development Protecting water sources and planted areas Developing waste management and recycling plans Minimizing construction and equipment impacts	1	Intermediate
<b>Green Landscape Design: Reducing the Urban Heat Island Effect</b>	As the earth's average temperature increases, cities, which are often significantly warmer than the surrounding landscapes (the urban heat island effect), will be faced with higher energy needs, increased pollution and degradation of air quality. The world is becoming more and more urban - it is estimated that within 50 years 80% of the world's population will live in urban areas. This interactive online course will address how we can mitigate the heat island effect so our urban cities remain healthy, economically viable places to live.	2	Fundamental
<b>Green Landscape Design: Water Conservation in the Landscape</b>	Were you aware that an efficient and effective irrigation system can reduce wasted water and save money? Current technology provides easy solutions to keep irrigation systems fine-tuned and make it easy to adjust remotely. This interactive online course will focus on the tenets of water conservation in landscaping including: appropriate plant selection, irrigation planning and design principles, efficient irrigation technologies, and others. Case studies of community conservation programs and site specific approaches are also featured.	2	Fundamental
<b>Green Street Retrofit</b>	How do you define a green street? This interactive, online course tells the story of street renovations implementing Low Impact Development design strategies. Retrofitting conventional streets into green streets provides stormwater treatment to remove pollutants from stormwater runoff and when feasible allowed to infiltrate as recharge. Monitoring of stormwater runoff volumes and pollutant loads can be conducted to demonstrate the effectiveness of the retrofit projects. Converted green streets also allow for educational potential to raise awareness about stormwater pollution (and solutions). This course will focus on the many environmentally friendly green infrastructure initiatives in Chicago, Illinois.	2	Fundamental
<b>Green Streets</b>	Can you design and execute a green street project? A green street is an integral part of the green infrastructure within an urban community. How expert are you in stormwater management, mitigation of urban heat island effect and improvement of urban air quality? This interactive online course gives you the concept of green street design to remedy the social, environmental, and safety issues associated with standard street design. You'll learn how to design green streets to: Reduce the amount of water that is collected and piped directly to streams and rivers Ensure the street has the least impact on the surrounding environment Help ensure the safety of the pedestrian or bicyclist on the street Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Green Urban Design</b>	Urban design theory is the livability and sense of urban place. Green urban design incorporates sustainability and environmental stewardship in urban design decisions. This interactive online course gives you fundamental urban design principles and green urban design approaches. Specifically we'll discuss green urban design details that you can apply to your projects: Green street design Parking approaches Alternate transportation options Storm water considerations Landscaping and irrigation Site elements	2	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Ground Fault Circuit Interrupters</b>	Normally, electric current is designed to flow through circuits at levels predetermined to be safe and return to the power source. Occasionally, conditions are created where the current amount or path is altered from the specified design. This course describes differences in the types of abnormal current flow that can occur within an electrical circuit because of the altered conditions and how ground fault circuit interrupters can protect against electrical shock.	1	Intermediate
<b>Grounding</b>	Grounding is the chief means of protecting life and property from electrical hazards such as lightning, line surges, short circuits, and ground faults. Grounding also helps ensure the proper operation of a system. This course provides an overview of what grounding is, why it is necessary, and effective grounding techniques.	1	Intermediate
<b>G-Suite Essentials (Google)</b>	Learn How 11 Tools from Google Can Boost Your Productivity. G-Suite (aka Google Apps and Google Drive) is more than just cloud-based email. This powerful and popular cloud-based suite includes apps to help you illustrate, communicate, collaborate, and organize your work - or your life. In this course, we'll cover the top features you'll find in your G-Suite.	2.25	Fundamental
<b>Guide to the FEMA Elevation Certificate V2</b>	The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment or Revision (LOMA or LOMR-F). This interactive online course will provide a comprehensive overview of the FEMA elevation certificate and instructions for how to complete one. You will get the information you need and you will have opportunities to practice filling in samples.	2	Intermediate
<b>Hand and Power Tools</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.38	Intermediate
<b>Hand and Power Tools for Canada</b>	The power to recognize and avoid injury is right at your fingertips. This course includes information on hand tools and power tools, including electrical, pneumatic, hydraulic, liquid fuel, and powder-actuated power tools. Topics covered include general tool safety, maintenance, guards, best practices, and operating guidelines.	0.25	Intermediate
<b>Hand Safety</b>	Imagine performing daily activities such as writing, driving a car, or using a phone without your hands. Because hands are used so frequently, hand safety can be taken for granted. The construction and manufacturing industries pose a particular risk to the hands due to the size and complexity of the equipment and machinery present. This course will provide general hand safety awareness and discuss techniques for avoiding common hand injuries.	0.25	Intermediate
<b>Hand Tools, Part 1</b>	Hand tools are used every day in construction, manufacturing, and industrial settings as well as for do-it-yourself projects at home. Hand tools can make it safer and easier to do many different kinds of jobs. This course discusses the proper use and general care of a wide variety of hand tools. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Hand Tools, Part 2</b>	Maintenance mechanics work with a variety of hand tools to perform many jobs, so it is important for mechanics to understand the function and care of common hand tools. Mechanics should know how to select the correct tool for any given job and how to use tools efficiently and safely. This course discusses the proper use and general care of pliers, vises, clamps and punches.	1	Intermediate
<b>Hand Washing and Hygiene</b>	Each year in the U.S., food contamination leads to millions of illnesses and thousands of deaths. Salmonella poisoning, E. coli, Listeria, Hepatitis, and Norovirus can all be contracted by poor hand hygiene and can have potentially deadly consequences. Knowing proper hand hygiene techniques, the routes of hand contamination, the importance of the time spent washing the hands, and the difference between soaps and sanitizers will help keep you and your co-workers safe from the many foodborne illnesses that surround us.	0.25	Intermediate
<b>Handling, Placing and Finishing Concrete</b>	This course is an overview of the proper methods and procedures for transporting, placing and finishing concrete. The material covers transporting, forms, placement tips, concrete conveying devices, and curing concrete, as well as precautions for hot and cold weather concreting. It briefly discusses some problems associated with improper construction practices that can result in cracking, scaling and other defects in the finished structure.	2	Fundamental
<b>Hazard Communication GHS</b>	Many workplaces use hazardous chemicals. But, its not always easy to understand the various labeling requirements for these chemicals and the information provided to employees about the hazards these chemicals present. Concern and confusion about these issues increased when OSHA updated its Hazard Communication Standard in 2012 so HazCom would more closely align with the Globally Harmonized System (GHS). This course provides an overview of the key issues covered in the Hazard Communication Standard, including the 2012 revision to align with GHS, and provides the information that employees need to know about the labeling of hazardous chemicals in all parts of their product cycle.	0.5	Intermediate
<b>Hazard Perception - Hidden Hazards</b>	Hidden hazards are not easily identifiable. They are partially or completely hidden from your view, but still have the potential to develop into a risk. Because the hazard is partially or completely hidden, it is unlikely you will be able to anticipate the risk far in advance. This course will identify examples of hidden hazards and best practices to reduce the risks of these hazards.	0.25	Intermediate
<b>Hazardous Material Classifications</b>	To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). The Hazard Communication Final Rule (HazCom 2012) is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, which provides standard criteria for determining chemical hazards to ensure different manufacturers and importers classify hazards similarly. This module will focus on the hazard classes defined by HazCom 2012.	0.5	Intermediate
<b>Hazardous Material Labeling</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. To ensure workers are provided with sufficient information to understand the hazards of the chemicals they work with, OSHA maintains a Hazard Communication Standard (HCS). Hazardous material labeling is a key element of the HCS. This module will cover the labeling requirements of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and alternative workplace labeling options.	0.5	Intermediate
<b>Hazardous Material Storage</b>	People commonly work near or with many different hazardous chemicals. Pesticides, paints, solvents, acids, gasoline, compressed gases such as propane, and liquid cleaning products such as bleach are just a few of the hazardous chemicals workers can be exposed to on a regular basis. The risk of being exposed to a hazardous chemical is greatly reduced when the chemical is handled and stored according to manufacturer recommendations and in compliance with facility standards. This module will present best practices for the safe storage of hazardous chemicals.	0.25	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Hazardous Waste Essentials</b>	Are you confused by all of the jargon and acronyms used regarding hazardous waste and remediation? What do you know about the latest real or perceived threats to groundwater or air quality? Do you want to learn whether your neighbor's stash of trash and rusted drums is merely annoying or legally hazardous? This interactive online course covers the origins of hazardous waste and the legislation set in place by the U.S. government and other global entities to mitigate risk and encourage pollution prevention.	1	Intermediate
<b>Hazardous Waste: Treatment</b>	Hazardous waste can exist in liquid, solid or slurry forms. It may originate in a current manufacturing process or from clean-up of an abandoned site. This course will review the background and design considerations for different methods of treating hazardous waste.	1	Intermediate
<b>HAZWOPER Air Monitoring</b>	Airborne contaminants present the greatest danger to hazardous waste and emergency response workers. Air monitoring is required to identify and quantify airborne hazards, so appropriate protective measures can be implemented. An air-monitoring plan must be included as part of a site-specific Health and Safety Plan (HASP). This module will discuss the requirements of an air monitoring plan, the sensors used to detect hazardous conditions, and what actions should be taken based on monitoring results.	0.6	Intermediate
<b>HAZWOPER Chemical Protective Clothing</b>	Chemical protective clothing is often required when responding to emergencies involving hazardous materials. This module describes the various types of chemical protective clothing used during hazardous waste operations and emergency response.	0.38	Intermediate
<b>HAZWOPER Chemical Protective Clothing Selection</b>	Chemical protective clothing is selected by comparing its capabilities and limitations to the hazards and required tasks. It is important to remember that no material is completely chemical resistant, and no material is effective for all chemicals. This module will describe important factors for selecting appropriate chemical protective clothing.	0.43	Intermediate
<b>HAZWOPER Confined Spaces</b>	All hazards typically found in regular work areas can also be found in confined spaces, but there are additional hazards that make confined spaces more dangerous. Confined spaces that present safety or health hazards require a permit for entry, so they are called permit-required confined spaces. This module will describe OSHA's permit-required confined space regulations and typical confined space emergency response procedures.	0.51	Intermediate
<b>HAZWOPER Decontamination</b>	Decontamination, or decon for short, is the removal of hazardous materials from workers and equipment to prevent adverse health effects. It is critical that all emergency responders are protected and off-site contamination is prevented. The correct approach must balance safety with responding in a timely manner to contain the incident. This module covers decontamination best practices.	0.65	Intermediate
<b>HAZWOPER Emergency Response Plan</b>	Planning is critical for safe, timely responses to hazardous material incidents. The HAZWOPER standard requires employers whose employees respond to releases of hazardous materials at any location to have a written emergency response plan. This includes both fixed-location employers like industrial facilities and those that deploy from a duty station to various locations, such as a fire department or emergency medical service. This module describes the required information in emergency response plans.	0.46	Intermediate
<b>HAZWOPER ERG Introduction</b>	The Department of Transportation's Emergency Response Guidebook (ERG) was created to help firefighters, law enforcement officers, medical personnel, and other first responders quickly identify the hazards present at transportation emergencies involving hazardous materials in order to protect themselves and the public. The ERG contains indexed lists of hazardous materials, the general hazards each material presents, and recommended safety precautions for emergency incidents. It is used in the U.S., Canada, Mexico, and several South American countries.	0.38	Intermediate
<b>HAZWOPER Hazmat Physical Properties</b>	The physical properties of a hazardous material provide information to help responders understand its behavior, whether in its container or after it has been released. This module describes the following physical properties: physical state, melting point, boiling point, vapor pressure, vapor density, specific gravity, expansion ratio, flash point, solubility, pH, reactivity, and toxicity.	0.33	Intermediate
<b>HAZWOPER Incident Command System</b>	An incident is any event that requires emergency response to protect life or property. OSHA's HAZWOPER standard requires all organizations that handle hazardous materials to use the Incident Command System (ICS). The ICS is a component of the National Incident Management System (NIMS) that provides a standard approach for incident management. ICS allows for the integration of facilities, equipment, personnel, procedures, and communication systems within a common organizational structure. ICS enables a coordinated response among various agencies, both public and private, and it establishes common processes for planning and managing resources. This module describes all aspects of the incident command system.	0.7	Intermediate
<b>HAZWOPER Ionizing Radiation Safety</b>	Radiation is energy emitted from a source that travels through space in a straight line at the speed of light. We are surrounded by radiation. Sunlight, radio waves, microwaves, and cell phone signals are all forms of low-energy radiation. These types of radiation are considered non-ionizing radiation and are relatively harmless. Ionizing radiation is radiation in the form of particles or electromagnetic waves that have enough energy to remove electrons from atoms in materials they strike. This module will focus on ionizing radiation, which can be hazardous.	0.56	Intermediate
<b>HAZWOPER Medical Surveillance</b>	HAZWOPER requires employers to have a medical surveillance program to monitor and assess the health of their employees. Medical surveillance consists of regular medical examinations to ensure workers are fit for duty and are not experiencing adverse health effects from occupational exposures. Programs should be site-specific and based on potential exposures at a given site. This module will discuss the requirements of a medical surveillance program and describe the different types of medical examinations that must be performed.	0.4	Intermediate
<b>HAZWOPER Overview</b>	Unexpected releases of hazardous materials pose a significant risk to workers and the general public. There are many causes of unexpected releases, such as human errors, equipment failures, or even natural disasters. To protect workers who work with hazardous materials, the Occupational Safety and Health Administration (OSHA) created the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). This module provides an overview of the HAZWOPER standard, who it applies to, and its requirements.	0.35	Intermediate
<b>HAZWOPER Release Mitigation</b>	Emergency release response actions can be divided into three main steps: 1. Identify the materials that have been released 2. Assess the severity and risk and 3. Select and implement methods to mitigate the release. Material identification and risk assessment are covered in other modules. This module focuses on the third step, release mitigation methods and their applicability.	0.51	Intermediate
<b>HAZWOPER Respirators</b>	Respirators are required when working around hazardous materials that present an inhalation hazard. A respirator is a personal protective device that covers at least the nose and mouth to reduce the amount of contaminated air inhaled by the user. This module will discuss the types of respirators typically used for hazardous waste operations and emergency response.	0.7	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>HAZWOPER Risk Assessment</b>	The top priority of incident response is the safety of responders and the general public. Risk assessment is the most important aspect of an incident response because the incident cannot be managed safely if the problem and risks are not understood. Failure to do a risk assessment can result in serious injuries or death. Each incident is unique, so deciding what to do and when, can be difficult. This module will cover various hazard identification techniques to help you make better decisions when responding to hazardous material incidents.	0.53	Intermediate
<b>HAZWOPER Safety and Health Program</b>	HAZWOPER requires employers to have a written, site-specific safety and health program. The program must be designed to identify, evaluate, and control health and safety hazards and provide emergency response information. This module will provide an overview of the required safety and health program elements.	0.25	Intermediate
<b>HAZWOPER Site Control</b>	Whether responding to an emergency or cleaning up hazardous waste, control of the work site is essential. Each site is unique and many factors must be considered when securing it, including the hazards present, size of the site, and the proximity of the surrounding community. The movement of people and equipment at the site must be carefully managed to minimize worker exposure and protect the public from hazards. This course describes practices and procedures for establishing and maintaining control of the site.	0.61	Intermediate
<b>HAZWOPER Toxicology</b>	A chemical's ability to cause adverse health effects in people or animals is indicated by its toxicity. The more toxic a substance is, the smaller the dose required to produce a damaging effect. This module will help you better understand toxicity and exposure limit information so you can prevent dangerous exposures.	0.51	Intermediate
<b>HAZWOPER: Operations</b>	OSHA has established several levels of training under the umbrella of HAZWOPER (Hazardous Waste Operations and Emergency Response). HAZWOPER training is required for personnel that may potentially be exposed to hazardous materials and for those involved in spill cleanup operations. OSHA defines HAZWOPER through their General Industry Regulation Title 29, section 1910.120, also known as 29 CFR 1910.20. This regulation defines several operations where HAZWOPER training is required. The Operations portion of the HAZWOPER training will cover the following: Levels of training which must be completed Emergency plans and hazardous waste informational sources Responses to various hazardous waste sources Medical surveillance programs Site monitoring, engineering controls and work practices Personal Protective Equipment (PPE)	1	Intermediate
<b>Health Effects Caused by Mold</b>	In the past twenty years, great progress has been made to understand the effects that mold has on human health. This course will provide a basic but clear understanding of what types of mold are dangerous, to what groups of people, and the factors that increase the negative impact on humans.	1	Fundamental
<b>Healthy Practices: Nutrition, Exercise, and Safety</b>	We all know it is important to have healthy habits in our lives, but there is a big difference between knowing, and doing. Through application exercises and a rich multimedia process, this course teaches simple strategies to help you implement simple daily practices that lead to a healthy life.	0.5	Intermediate
<b>Hearing Conservation</b>	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.67	Intermediate
<b>Hearing Protection for Canada</b>	Protect one of your most valuable senses with a better understanding of the anatomy of the ear, how sound works, how the ear interprets sound, the effects of noise on hearing, and annual audiometric testing. Learn how to avoid occupational hearing loss by choosing and using the right hearing protection for your job, such as ear muffs and ear plugs.	0.5	Intermediate
<b>Heat Exchanger Basics</b>	Heat exchangers are typically used to transfer heat between fluids using conduction, convection, and radiation. This course details the three heat transferring methods used by heat exchangers as well as how heat exchangers are classified. It also illustrates common heat exchangers types such as shell-and-tube, plate, extended surface, and regenerative heat exchangers.	0.25	Intermediate
<b>Heat Exchangers: Condensers and Reboilers</b>	There are many different types of shell-and-tube heat exchangers, and each one is designed to accomplish a specific function in a process. In this interactive, online course, you will explore condensers and reboilers, two shell-and-tube heat exchangers that are designed to do specific jobs.	0.5	Intermediate
<b>Heat Exchangers: Cooling Towers</b>	In many industrial facilities, various pieces of equipment and fluids used in process systems need to be cooled. Disposing of or discharging hot water into lakes or rivers can lead to thermal pollution, and water that is discharged must be replaced. For these reasons, it's often more efficient to cool the hot water with a cooling tower and reuse it. This interactive online course will introduce you to cooling tower systems and a couple of types of cooling towers, and you will see how a typical cooling tower is operated. You will also look at how chemistry is involved with maintaining a cooling tower.	0.5	Intermediate
<b>Heat Exchangers: Operation of Shell and Tube Types</b>	Many industrial processes must heat or cool fluids to produce products. Heating and cooling are often accomplished by transferring heat between fluids, and this heat transfer between fluids occurs in heat exchangers. There are many types of heat exchangers, but one of the most common types is a shell and tube heat exchanger. In this interactive, online course, you will look at the operation of a typical shell and tube heat exchanger, including startup and shutdown. You will also explore some of the problems associated with the operation of a typical shell and tube heat exchanger.	0.5	Intermediate
<b>Heat Stress Causes</b>	Heat stress is a serious concern in many workplaces. Every year heat stress affects thousands of people, and some die as a result. This course provides the information you'll need to beat the heat and keep yourself and other workers safe. You'll learn about the different types of heat stress, from the least severe (heat rash) to the most severe (heat stroke). It will explain how the body reacts to heat, and the causes of heat stress. Finally, it will list some factors that affect how individuals tolerate heat.	0.25	Intermediate
<b>Heat Stress Symptoms and Prevention</b>	Heat stress can take a number of different forms, including heat rash, heat cramps, heat syncope (fainting), heat exhaustion, and heat stroke. Each of these conditions has its own signs, symptoms, and treatments. This course will help you to recognize each condition, and to know which ones require simple corrective actions, like taking a break, and which ones may require a trip to the hospital.	0.4	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Heavy Construction Equipment Basics - Earthmoving &amp; Excavating</b>	Contractors do many types of construction activities that require many different types, sizes and groupings of equipment. Most new construction projects are connected to the earth by some type of foundation system. Utilities are located underground so they are less obtrusive and not in the way. Building sites must drain away from the structure and divert the water to a safe place. All of these activities require excavating and earthmoving. The focus of this 3-hour interactive online course is big iron used for excavating and earthmoving. Discussion is intended to be basic. Content is not intended to be comprehensive. Discussion focuses on the basic principles for heavy equipment selection, grouping and simple costing. Earthmoving equipment discussed includes bulldozers, front-end loaders, motor graders, scrapers, and dump trucks. Excavating equipment discussed includes excavators, backhoes and trenchers. A short test must be completed after each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Heavy Construction Equipment Basics - Lifting</b>	Vertical construction requires building a structure up or away from the surface of the earth. The work requires heavy construction equipment for moving workers, materials and other equipment onto the structure as it is built. Hoisting or lifting loads is an integral part of this construction. How it is to be done must be incorporated into the construction strategy and how much it will cost must be included in the budget. Choosing the right lifting equipment and rigging is mandatory for safe vertical construction. Content included in this 2-hour online interactive course is intended to be basic. Discussion focuses on basic principles for lifting equipment selection, capabilities and uses. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Heavy Equipment Safety Introduction</b>	Heavy construction equipment is extremely productive. The size and power of these machines however, presents a degree of risk to the men and women who operate and work around them. This course will cover the basics for remaining safe around heavy equipment as well as some specific concepts and guidelines for you to follow when working with and around heavy construction equipment.	0.75	Intermediate
<b>Heavy Equipment Visibility</b>	When operating heavy equipment, the driver's view is likely to be blocked in several directions. These blind spots can even obscure a person standing right next to the equipment. One wrong move and that person could be injured or even killed. But these incidents do not have to happen. This module will discuss how to safely operate and work around heavy equipment to avoid injuries.	0.25	Intermediate
<b>Heavy Truck Braking System and Braking Techniques</b>	The single most important component in any vehicle is the braking system, especially on heavy trucks. The tractor portion of a tractor-semi trailer rig may have ten or more valves controlling the air flow to the brakes. This program reviews the types of braking systems found on large trucks versus cars and illustrates the importance of properly maintaining the braking system.	0.25	Fundamental
<b>Henderson et al - A Dave Gibson Metes and Bounds Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for METES AND BOUNDS parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Metes and Bounds Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>HEPA High Efficiency Filters</b>	This webcast covers essential information regarding HEPA high efficiency filters and their importance in HVAC air handling systems. The course will include technical information about HEPA filters, as well as how HEPAs are constructed, tested, and maintained. We will also cover documentation regarding testing and maintenance of this important HVAC system component.	1	Fundamental
<b>Hexavalent Chromium</b>	Protect yourself and your team from increased risk of cancer with our training designed to raise awareness about the dangers of hexavalent chromium exposure. Welders and other workers who handle or assemble electronic components may be at higher risk of exposure to this known human carcinogen. Learn what hexavalent chromium is, how it's formed, the health hazards it presents, and what personal protective equipment you can use to protect yourself. Our training will also give you a better understanding of OSHA permissible exposure limits, monitoring, record keeping, medical surveillance, and employee notification. You'll also learn about industry best practices related to engineering and administrative controls to protect workers from dangerous exposure to hexavalent chromium.	0.5	Intermediate
<b>High Performance Landscapes: Protecting and Restoring Soil Health in Urban Landscapes</b>	Healthy soils are the foundation of a sustainable high performance landscape. Traditional design and construction practices often undermine the ability of soils to provide ecosystem services such as stormwater management, optimal plant growth, nutrient cycling, pollutant removal and water conservation. New thinking in the way we build and manage our soils is required for the future health and well-being of humanity. The importance of soils and its many ecosystem services has become more widely recognized and is now a component of green building certification systems such as LEED and SITES. Professionals who understand the basic principles of soil science and its relevance to landscape performance are better equipped to assist projects in achieving economic and environmental benefits. This interactive online course will provide an overview of soil science specific to the landscape design and construction industry, as well as the information needed to improve the overall performance of the site through strategic soil preservation and restoration practices.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Highway Engineering: Contracts and Supervision</b>	<p>Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Practically all highway construction projects in the United States are public works, which are constructed with public funds. The agency authorizing this construction may be a federal, state, municipal, or county governmental unit, but the greatest number of highway construction projects today are authorized through the various state highway agencies. More than 95 percent of the construction done under state highway supervision is done by contract. The remaining 5 percent is done by the state's own forces organized and equipped to do this work. This 1-hour interactive online course covers the procedure generally followed by most state highway agencies in preparing contractual documents and in supervising construction. The course reviews unit pricing, the bid process, documentation, subcontracting, prequalification, state and federal agreements, bidding mechanics, unbalanced bids and construction supervision. This is the seventh course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Intermediate
<b>Highway Engineering: Highway Drainage and Surveys</b>	<p>Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. One of the most important considerations in locating and designing rural highways and city streets is providing adequate drainage. Adequate and economic drainage is absolutely essential for the protection of the investment made in a highway structure and for safeguarding the lives of the persons who use it. This 4-hour interactive online course discusses some of the fundamental concepts of highway and street drainage. Surface drainage in essentially rural areas is discussed in considerable detail; accompanying this is a discussion of measures for the prevention of erosion of shoulders, sideslopes, and side ditches. Considerable space is devoted to the location, design, and construction of culverts. Material is also presented relative to subdrainage, and the course concludes with a brief discussion of drainage in municipal areas. This is the sixth course in a series on highway engineering. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	4	Intermediate
<b>Highway Engineering: Part 1 - Highway Materials, Maintenance and Rehabilitation</b>	<p>Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the first half of the eighth course in a series on highway engineering. This course describes some of the physical characteristics and quality control tests for soils, aggregates, bituminous materials, and portland cement. Detailed material specifications and tests for these and other highway construction materials have been published by the American Association of State Highway and Transportation Officials.</p>	8	Intermediate
<b>Highway Engineering: Part 2 - Highway Materials, Maintenance and Rehabilitation</b>	<p>Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Good highways are so interwoven with every phase of our daily activities that it is almost impossible to imagine what life would be like without them. Each year in the United States, enormous quantities of construction materials are used for improvements to the public roadway system. Such projects require annually over 590 million tons of aggregates, 11 million tons of bituminous materials, and 19 million tons of cement, as well as vast quantities of steel, lumber, explosives, and petroleum products. This 8-hour interactive online course is the second half of the eighth course in a series on highway engineering. This course covers high-type pavements, concrete pavements, maintenance and rehabilitation.</p>	8	Intermediate
<b>Highway Rumble Strips</b>	<p>Rumble strips are a common safety feature incorporated into new roadway designs. This 1-hour interactive online course contains information on state-of-the-practice for the design and installation of shoulder rumble strips and provides guidelines for their use on appropriate rural segments of the National Highway System (NHS). The text of the course is taken from the Federal Highway Administration's Technical Advisory on rumble strips. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.</p>	1	Fundamental
<b>Hiring Practices</b>	<p>Is she married? Do we have to post externally? These and other potentially loaded questions often appear during discussions regarding hiring. It is vital to understand what is appropriate and what is not when hiring practices is the name of the game. However, more than simply providing information, this course will take you through application exercises and provide a rich multimedia experience so that you can immediately apply what you have learned to your current situation.</p>	1.25	Intermediate
<b>Historic Preservation: An Introduction</b>	<p>Historic Preservation is the identification, protection and enhancement of historic resources or features. This 1-hour interactive online course covers not only the general underpinnings of the preservation and rehabilitation process, it also outlines the specifics on how to inspect and work with specific materials. Historic structures originate from a wide variety of time periods and areas. Consequently, there are a large variety of different materials examined in this course. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.</p>	1	Fundamental
<b>Historic Preservation: Concrete and Terra-Cotta</b>	<p>Terra-cotta and concrete construction have created some of the world's most distinctive and historically significant structures. Unfortunately, many early concrete and terra-cotta buildings are threatened by deterioration. Effective protection and maintenance are the keys to the durability of these materials-many can be saved through preservation projects involving sensitive repair and replacement. This 1-hour interactive online course outlines the historic background of concrete and terra-cotta, the causes of their deterioration, methods to effectively inspect and analyze their current state as well as techniques of maintenance, repair and replacement. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.</p>	1	Fundamental
<b>Historic Preservation: Energy Conservation</b>	<p>With the dwindling supply of energy resources and new efficiency demands placed on the existing building stock, many owners of historic buildings and their architects are assessing the ability of these buildings to conserve energy with an eye to improving thermal performance. This 1-hour interactive online course has been developed to assist those persons attempting energy conservation measures and weatherization improvements such as adding insulation and storm windows or caulking of exterior building joints. In historic buildings, many measures can result in the inappropriate alteration of important architectural features, or, perhaps even worse, cause serious damage to the historic building materials through unwanted chemical reactions or moisture caused deterioration. This brief recommends measures that will achieve the greatest energy savings with the least alteration to the historic buildings, while using materials that do not cause damage and that represent sound economic investments. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.</p>	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Historic Preservation: Exterior Additions and Substitutions</b>	The Secretary of the Interior's Standards for Rehabilitation require that deteriorated architectural features be repaired rather than replaced wherever possible. In the event that replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual properties. This 1-hour interactive online course discusses the importance of maintaining historic character and illustrates how and when substitute materials may be used to match the appearance and general properties of the historic material without damaging the historic resource. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Fundamental
<b>Historic Preservation: Rehabilitating Interiors</b>	While the exterior of a building may be its most prominent visible aspect, or its public face, its interior can be even more important in conveying the building's history and development over time. This 1-hour interactive online course has been developed to assist building owners and architects in identifying and evaluating those elements of a building's interior that contribute to its historic character, and in planning for the preservation of those elements in the process of rehabilitation. The information covered applies to all building types and styles, from 18th century churches to 20th century office buildings. The course discusses historic interior paints, and addresses a variety of materials and features: plaster walls and ceilings; wooden doors, molding, and trim; and metal items such as radiators and railings. It provides background information about some of the types of paint which were used in the past, discusses the more common causes and effects of interior paint failure, and explains the principal factors guiding decisions about repainting, including what level of paint investigation may be appropriate.	1	Fundamental
<b>Historic Preservation: Roofing for Historic Buildings</b>	No matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitably fail. A poor roof will permit the accelerated deterioration of historic building materials-masonry, wood, plaster, paint-and will cause general disintegration of the basic structure. This 2-hour interactive online course covers the historic character of a building, describes how to examine and record the existing roof, considers historic craftsmanship and gives detailed instructions on how to properly research, stabilize, repair and replace historic roofs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Hot Work Safety</b>	This course covers basic guidelines and best work practices for performing hot work safely. Before welding, cutting, or brazing metal or performing any work that could generate enough heat or sparks to start a fire, everyone involved should be properly trained on the fundamentals of hot work safety. Based on NFPA 51B and 29 CFR Subpart Q regarding welding, cutting, brazing, and other hot work, this course is intended to help workers recognize the potential hazards of hot work and avoid injuries and property damage by properly planning, preparing for, and performing hot work.	0.47	Intermediate
<b>Hurricane Damage Investigations - Wind vs. Water</b>	In the aftermath of a hurricane, being able to determine wind damage vs. water damage is very important. This interactive online course will describe a methodology based on engineering principles and coastal science to determine the extent of damage to coastal buildings impacted by storm surge and high winds, based on wind field analysis matched to storm surge inundation and wave heights. This course provides an engineering investigative method that helps the engineer be the real expert when it comes to determining losses from damaging coastal storms.	2	Intermediate
<b>Hurricane Damage: Wind vs. Water Determination</b>	In many areas, the insurance industry offers expensive insurance against damage by wind and separate expensive insurance against damage from flooding (FEMA offers inexpensive insurance against flood damage). When a person purchases a home, the mortgage company invariably wants its investment covered by a homeowner's policy. A typical homeowner's policy includes insurance for damage done by wind; however, as the typical home is not imperiled by flooding, a policy does not include insurance from damage due to flood waters. Thus the problem faced by the inspector when a hurricane hits. Was the damage caused by the wind or the water? The author of this course spent 15 months covering the damage caused by hurricanes Katrina and Rita in the Gulf and created this 1-hour online course to educate those who are in that predicament due to the loss of their home or business, and those who are providing assistance to the insurance companies. This course takes a look at three specific scenarios of structure damage from the 2005 Gulf Hurricanes and provides numerous photographic examples. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Hurricane Mitigation Techniques and Inspection</b>	This course will help you better understand what the insurance industry is looking for when a Wind Mitigation Form is submitted, especially as it pertains to the High Velocity Hurricane Zone of Miami, Dade, and Broward counties. We will learn how to identify window and door labels for protection; how to evaluate and categorize roof configurations and determine a roof's geometry; and how to point out the only acceptable secondary water resistance (SWR) products for a roof.	2	Fundamental
<b>HVAC - Heating and Cooling</b>	HVAC systems are used to maintain clean, conditioned air in enclosed spaces. The term conditioned refers to the fact that the temperature and humidity of the air are maintained within desired ranges. This module describes the two most common cooling systems as well as heating devices used in HVAC systems.	0.5	Intermediate
<b>HVAC - Hot Water and Ventilation</b>	The purpose of heating, ventilation, and air conditioning systems (commonly referred to as HVAC systems) is to provide environments that are comfortable for people and allow equipment to operate safely and reliably. HVAC systems are used in residential, commercial, and industrial facilities. This module contains information on hot water heating systems, air distribution systems, and HVAC control systems.	0.5	Intermediate
<b>HVAC Acoustics</b>	What is that sound? Is the HVAC system really that loud? How can I solve this problem? This interactive online course presents critical information regarding HVAC Acoustics that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fundamentals of sound, noise reducing materials, sound ratings, noise control for fans and other key HVAC system components. This course will serve as an important reference for people involved in HVAC systems and acoustics.	3	Fundamental
<b>HVAC Basics</b>	The purpose of Heating, Ventilation and Air Conditioning (HVAC) systems is to provide environments that are comfortable for people and allow temperature- or humidity- sensitive equipment to operate safely and reliably. HVAC systems are used in residential, commercial and industrial facilities. This module will identify safe work practices to use when working around HVAC systems and the most common HVAC system components.	0.25	Intermediate
<b>HVAC Design</b>	This interactive webcast covers essential design information related to HVAC systems. Typical HVAC equipment and systems are covered, including key control concepts that provide reliable system operation. This course will be comprehensive in nature, reviewing most common types of air handling systems utilized today.	1	Fundamental

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HVAC Distribution	This interactive webcast covers common design principles for HVAC distribution systems. We will review these distribution systems based on the various types of HVAC systems where they are used. The various HVAC operating concepts will also be reviewed and how they affect the design of the distribution system.	1	Fundamental
HVAC HEPA Filters	HVAC HEPA filters are used and valued in many, if not all, industries. You will want to use them to promote the healthiest environments for families, employees, and customers of clients. This 1-hour interactive online course provides a general knowledge of the industrial, pharmaceutical and medical applications. Topics covered include filter construction, filter testing and maintenance, and documentation methods and forms.	1	Fundamental
HVAC System Fans	Centrifugal or Axial? Do you know how to select the best fan for your project? This interactive online course presents critical information regarding HVAC fans, motors and controls that will be useful for designers, engineers, facilities maintenance and operations personnel. Important information presented includes fan fundamentals, various types of fans, performance curves, fan vibration and sound, as well as drive motors and VFD drive systems. This course will serve as an important reference for people involved in HVAC fans design, selection, and installation, as well as operations.	3	Fundamental
Hydraulic Design of Storm Sewers	Storm sewers are the hidden workhorse of our infrastructure. They are designed to ensure our urbanized communities remain dry and maintain safety during extreme events. For this reason it is important that storm sewers are designed with special detail and care. This interactive online course will discuss the design of storm sewer systems and its two core theories, the conservation of mass and energy. A sample spreadsheet will be provided as part of the course to help practitioners in the design of storm sewers.	2	Advanced
Hydraulic Fluid Safety	This course covers basic guidelines and best practices for working safely around common hydraulic equipment. From bottle jacks to forklifts and shop equipment, this course provides important information on the principles of hydraulics and the hazards that hydraulic systems can present. Based on OSHA documents and industry experience, this course is designed to help workers understand how to recognize common hydraulic hazards and avoid serious injuries.	0.47	Intermediate
Hydraulic System Basics	In a hydraulic system, pressure applied anywhere to a contained, incompressible fluid is transmitted undiminished throughout the fluid. This course is an introduction to hydraulic systems and their uses. It covers hydraulic theory, common components, what mechanical advantage is, and how hydraulic fluid is contaminated.	0.25	Intermediate
Hydraulics: Actuators	This course is designed to familiarize participants with the various types of actuators that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of single-acting cylinders, double-acting cylinders, vane motors, gear motors, piston motors, and partial rotation actuators.	2	Intermediate
Hydraulics: Component Inspection and Replacement	This course is designed to familiarize participants with typical procedures for removing, inspecting, reassembling, and reinstalling hydraulic system components. After completing this course, participants should be able to describe how to remove, inspect, reassemble, and reinstall hydraulic valves, pumps, and cylinders.	2	Intermediate
Hydraulics: Diagrams	This course is designed to familiarize participants with hydraulic system schematic diagrams. After completing this course, participants should be able to interpret symbols that are used on hydraulic system schematic diagrams and use schematic diagrams to trace fluid flow through various types of hydraulic circuits.	2	Intermediate
Hydraulics: Fluid and Reservoirs	This course is designed to familiarize participants with the fluid used in hydraulic systems and with the basic functions and uses of filters and strainers, reservoirs, conductors, and accumulators. After completing this course, participants should be able to describe the functions, characteristics, and types of fluid that may be used in hydraulic systems. They should also be able to describe typical uses of filters and strainers, describe the components and accessories of typical reservoirs, describe various types of conductors and fittings, and describe the basic functions and common uses of accumulators in hydraulic systems.	2	Intermediate
Hydraulics: Principles and Circuits	This course is designed to familiarize participants with the principles of hydraulic system operation and with the components and operation of some typical hydraulic circuits. After completing this course, participants should be able to explain how force is transmitted through a liquid and how pressure and flow are related in a hydraulic system. They should also be able to describe the main components and basic operation of several types of hydraulic circuits.	2	Intermediate
Hydraulics: Pumps	This course is designed to familiarize participants with the various types of pumps that are used in hydraulic systems. After completing this course, participants should be able to describe the basic components and operation of common types of gear pumps, vane pumps, and piston pumps.	2	Intermediate
Hydraulics: Routine Maintenance	This course is designed to familiarize participants with tasks associated with the routine maintenance of hydraulic systems. After completing this course, participants should be able to describe general considerations associated with routine maintenance. They should also be able to describe procedures for performing external inspections and for maintaining some system components.	2	Intermediate
Hydraulics: Troubleshooting	This course is designed to familiarize participants with general steps for analyzing problems in hydraulic systems. After completing this course, participants should be able to explain how to identify problems in hydraulic systems and describe common problems associated with hydraulic system components.	2	Intermediate
Hydraulics: Valves, Part 1	This course is designed to familiarize participants with the basic design and operation of various types of valves used in hydraulic systems. After completing this course, participants should be able to describe the functions of flow and pressure in a hydraulic system; and identify and describe various types of manually adjusted valves, sliding spool valves, and spring-biased valves. They should also be able to describe various ways in which valves can be actuated.	2	Intermediate
Hydraulics: Valves, Part 2	This course is designed to familiarize participants with the functions performed by various types of valves used in hydraulic systems. After completing this course, participants should be able to describe how valves control flow rate, flow direction, and pressure in a hydraulic system. They should be able to describe the basic operation of a pressure-compensated flow control valve, a temperature-compensated flow control valve, various types of flow control circuits, a pressure reducing valve, a relief valve, a sequence valve, and a counterbalance valve.	2	Intermediate
Hydrogen Fluoride Safety	HF acid is used throughout industry every day, and in most cases, without ill affect. However, it's important to talk about the potential hazards of HF acid as well as the safe work practices when working or handling HF acid. This course will introduce and describe the characteristics and uses of hydrogen fluoride (HF). It will discuss the signs, symptoms, and health effects of HF. Safe work practices and first aid procedures will also be discussed.	1	Fundamental
Hydrogen Sulfide Awareness	Sometimes what you can't smell can hurt you. Protect yourself and your team with this critical information that raises awareness of what Hydrogen Sulfide (H <sub>2</sub> S) is and discusses exposure risks and effects, toxicity, ignition, detection, prevention, and evacuation.	0.25	Intermediate

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Title	Description	Hours	Level
<b>IIIRC 7 Hour General Mold Program</b>	This is a 5-part, interactive course. Part one of this course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure. The mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? Part 2 of this course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure. Part 3 of this course examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project. Part 4 of this course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap. Part 5 of this course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	7	Fundamental
<b>IIIRC 7 Hour Mold Health Effects and Science Program</b>	This program covers how mold growth can affect the health and safety of building occupants. The program also gives a little bit of a scientific background of mold. This program has 5 lessons with a test at the end of each lesson which must be passed with a score of 70% or better to move on to the next lesson. The 5 lessons are: Lesson 1: More Than Mold -Health Effects Associated With Mold and Water Damage Lesson 2: Health Effects Caused by Mold Lesson 3: Mold Safety and Health Lesson 4: The Science of Mold Lesson 5: Mold Sampling	7	Fundamental
<b>IIIRC 7 Hour Mold Remediation Program #1</b>	This is a 7-part, interactive course. Knowing which chemicals to use, when to use them and how to use them as part of the overall project is the goal of this course. In part 1, we will visit the terminology and the recent trends to equip you to make better decisions for your team and project. Part 2 will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation. Part 3 of this course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment. Part 4 of this course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth. Part 5 will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant. Part 6 shows you how to set the bar so the technicians know what to do, clients are happy, and each project has a better chance of profit and success. Part 7 covers equipment to use, how to use it, and how to take care of it. This course allows you to quickly learn from practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	7	Fundamental
<b>Impacts of the 2010 ADA Guidelines</b>	The 2010 ADA Standards for Accessible Design became requirement as of March 15, 2012. Are you ready to implement them? You can quickly become familiar with the most important changes and the clarifications that are included in this most recent release. In this Webcast, we will discuss definitions and history of the ADA. Give you details of the updates, alterations, and clarifications. You'll also get explanations of the importance of compliance and the implications for non-compliance. ATTN: The content in this course generally addresses requirements from the American with Disabilities Act (ADA) that is adopted with amendments in the 2015 Minnesota State Building Code in Minnesota Rules Chapter 1341. For specific requirements in the 2015 Minnesota Accessibility Code, please reference the following link: <a href="https://codes.iccsafe.org/content/MAC2015/toc">https://codes.iccsafe.org/content/MAC2015/toc</a>	2	Intermediate
<b>Improving Work Habits: 01-Performance Issue or Poor Work Habit?</b>	Distinguish between a performance issue and a poor work habit, which require a different problem-solving process.	1	Intermediate
<b>Improving Work Habits: 02-Describing the Work Habit</b>	Practice describing the team member's poor work habit focusing on behavior and fact, not attitudes or opinions.	1	Intermediate
<b>Improving Work Habits: 03-Keep Ownership with the Team Member</b>	What you should say in the context of work habit discussions when team members try to deny responsibility for the poor habit.	1	Intermediate
<b>Improving Work Habits: 04-How Would You Empathize?</b>	Use empathy in your discussions is important for team member self-esteem and buy-in.	1	Intermediate
<b>Improving Work Habits: 05-Your Path to Improving Work Habits</b>	Learn and apply the five-step process for improving poor work habits shown by your team members.	1	Intermediate
<b>Improving Work Habits: 06-Mastering Improving Work Habits</b>	Practice Improving Work Habits in a full scenario situation.	1	Intermediate

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<b>Improving Work Habits: 07-Improving Work Habits Health Check</b>	Test your ability to apply Improving Work Habits concepts in this skills-based scenario assessment.	1	Intermediate
<b>Increase Your Listening &amp; Communication Power</b>	Employees, Projects, and Even Entire Businesses Fail Because They Don't Communicate Effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Increase Your Listening Power (Effective Communication)</b>	Employees, projects, and even entire businesses fail because they don't communicate effectively. Communication can mean the difference between a raging success and a catastrophic failure. Examine the difference between truly successful businesses and those that are just average, and clear communication is part of the foundation. A great communicator can explain, motivate, unite, and inspire teams to achieve more than they thought possible.	1	Fundamental
<b>Increasing Building Energy Efficiencies: Policies and Practice</b>	While LEED and Sustainable Design dominated the industry landscape in the 2000's, the last several years have witnessed a pivot to specific improvements in resources, specifically in the areas of water and energy use and efficiency. That bar has been raised through increasingly stringent standards in ASHRAE 90.1-2010 and 189.1-2011, as well as Federal mandates increasing in stringency from EPAAct05 through EISA 07, Executive Order 13423, EO 13423 & EO 13514, and most recently 10 CFR 433: Energy Efficiency Design Standards for new Federal Commercial Buildings.	2	Fundamental
<b>Indiana Engineers' Laws &amp; Rules</b>	In today's business world, it is easy to become so wrapped up in your everyday work that you forget some of the basic rules and regulations that govern your profession. This course reviews the essential information contained in Indiana Code, Title 25, Article 31: Professional Engineers, Indiana Code, Title 25, Article 1, Chapter 11: Professional Licensing Standards of Practice, and Indiana Administrative Code, Title 864: General Requirements. By reexamining these laws and rules on a regular basis, you will stay abreast of changes and amendments to the codes that govern Indiana engineers.	2	Fundamental
<b>Industrial Housekeeping</b>	Poor housekeeping practices create hazards in our workplace. The concept of housekeeping includes picking up, wiping up, and cleaning up. This course will cover the benefits of a clean workplace and how to practice good housekeeping.	0.25	Intermediate
<b>Industrial Pneumatic Technology: Aftercoolers, Driers, and Receivers</b>	Air compressors are used in industry to store compressed air or inert gases, which can then be used to power air motors, cylinders, and other pneumatic devices. Clean, dry air is essential for pneumatic systems to function properly, so it is important to remove moisture and contaminants to ensure optimum performance of the system. In this interactive online course, we will identify some components of air compressors, including aftercoolers, driers, receivers, and air distribution systems.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Air Preparation</b>	Pneumatic components and systems require compressed air that is free of contamination. No matter how well a system is designed, if contaminated air gets into the components, it can interfere with proper circuit operation. In this interactive, online course, we will cover the types of contaminants that can be found in the air used in pneumatic systems and identify ways to clean it up.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Check Valves, Cylinders, and Motors</b>	Selecting the right cylinders, check valves, and motors in pneumatic applications involves more than just picking them off the shelf. In this interactive online course, we will cover check valves and two types of pneumatic actuators: cylinders and motors. We will discuss the functions of each in a pneumatic system. We will also cover formulas used in sizing cylinders, cylinder volume, compression ratio, and more.	1	Intermediate
<b>Industrial Pneumatic Technology: Compressors</b>	In order to accomplish useful work with a pneumatic system, we need a device that can supply a sufficient amount of air at a desired pressure. The device that performs this function is called a compressor. In this interactive online course we will describe the principles of air compressor operation and give you details about the types of positive displacement and dynamic air compressors. We will instruct you in identifying compressor capacity and we'll give you parameters for selecting a compressor system.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Control of Pneumatic Energy</b>	First off, energy that is transmitted through a pneumatic system must be directed and under complete control at all times. If it isn't, useful work may not be done, and machinery or machine operators could be harmed. In this interactive online course you will learn the basics of the pneumatic system, its operation, and its control. You will see diagrams of the components and get explanations for how the various parts work together.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Directional Control Valves</b>	A directional control valve is an essential component that enables flow into different paths from different sources in hydraulic and pneumatic machinery. This fundamental part controls the stop, start and direction of flow. In this interactive, online course we will cover the different types of directional control valves and explain the methods used to classify these valves. We will discuss the use of poppet valves, and identify the different types of shear action valves. Lastly, we will discuss replacing valves and correct sizing for flow rate.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Energy Transmission</b>	Do you know how compressors are used? Were you aware that gas is actually a fluid? In this interactive online course we will discuss the basics of gases and pressure. We will also discuss compressors and how pressure is measured.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Excess Flow Valves, Boosters, and Sequence Valves</b>	How much do you know about Pneumatics? In this online, interactive course we'll be examining a few pneumatic components and showing how they can be used in some basic circuits. We'll begin with a definition and move through descriptions of the components and circuits.	0.5	Intermediate
<b>Industrial Pneumatic Technology: Flow Control Valves, Silencers, and Quick Exhausts</b>	Flow control valves used in pneumatic circuits affect actuator speed. Understanding how flow control valves operate will allow you to increase or decrease flow rate to meet the needs of your pneumatic circuits. This interactive online course will teach you about several types of adjustable flow control valves available. You will learn how flow control valves operate by reviewing different pneumatic circuit examples. Additionally, you will learn how an orifice is used to control flow rate. You will also learn about special purpose devices used in pneumatic circuits.	0.5	Intermediate

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<b>Industrial Pneumatic Technology: Force Transmission</b>	Pneumatic systems work because of a special property of fluids and the way these fluids transmit force and pressure. Understanding how fluids transmit energy will allow you to maintain your pneumatic control systems at desired operating conditions. This interactive online course will teach you about the different sources of pneumatic energy along with how force is carried through gases and liquids. Additionally, you will learn ways compressed air is used in pneumatic systems. You will also learn about calculation methods for determining how much pressure is generated in gases.	0.5	Intermediate
<b>Infrastructure 101: Repairing Pandora's Box</b>	What will you find when you open a manhole for repair? For most engineers and utility managers their first introduction to infrastructure management is an emergency call for a manhole collapse or similar catastrophic failure. In part, they can be prepared for this by understanding the root causes of failure and the appropriate types of repair and replacement necessary and by having an appropriate plan of action in place. Preventative and remedial plans require the same level of detail and understanding to avoid recurrence and busted budgets. A manhole repair need not be Pandora's box. In this interactive online course, we will discuss different approaches to infrastructure management, including various materials used in the rehabilitation of manholes. Alternative strategies used to improve safety, reduce public health or environmental risks, and reduce costs will also be covered.	1	Fundamental
<b>Inland Wetland Restoration</b>	Design professionals are often expected to understand the fundamentals of wetland creation and restoration. Today numerous projects are coupled with wetland creation or restoration permitting conditions. Fulfilling these conditions is no easy task, given that a project must meet certain criteria for success-for instance, a 75% success rate for plantings after two or three growing seasons. Further, the disquieting fact is that more than 50% of created or restored wetlands nationwide fail within a few years. New wetlands may be subject to massive plant die-off, invasions by unintended or non-native plants and insects, or are planted with incorrect species (usually as the result of poor monitoring during initial construction). Other factors can impact them as well. This interactive online course covers the basic parameters required for all successful inland wetland creation. It introduces a sample report of a proposed restoration project, and discusses how to approach a problem site. Finally, it wraps up with a look at the obvious pitfalls and the critical tools necessary to design a successful wetland. This course is a supplement to A Wetland Primer for Design Professionals and Advanced Wetlands Primer: Field Evaluation & Permitting by the same author.	2	Intermediate
<b>Innovative Heat Pump Technology</b>	Heat pumps have improved and evolved considerably since gaining acceptance as home heating systems in the 1970's. These air source heat pumps provided single zone heating in climates with mild winter temperatures. Today there are water source heat pumps, variable refrigerant flow heat pumps, and multi-zone heat pumps. Today's heat pump has improved efficiency and operates at lower outside air temperatures. This interactive online course will examine the latest heat pump technologies and the multitude of applications for this flexible and efficient technology.	1	Fundamental
<b>Inspecting for &amp; Filling Out the 4-Point Form</b>	In this course you will learn about the Four Point form where you will learn how to examine four points of a building: the electrical system, the plumbing system, the heating system, and the roofing system. Why do we need a 4-point form filled out? According to insurance underwriter actuaries, these four systems have been statistically expensive to repair or replace. There are statistics showing how the 4-point inspection has saved underwriters substantial dollar amounts. Why should we care? Well, because 80 percent of the population lives in a home that is more than 20-years-old, and if you don't live in one of these homes today, you will eventually as your house grows older. That said, the insurance industry is becoming more proactive when it comes to insuring a home against issues that will cost them money. The boundaries are getting tighter, and the deductibles are getting higher.	1	Fundamental
<b>Insulators</b>	Insulators, or nonconductors, are materials with electrons that are tightly bound to their atoms and require large amounts of energy to free them from the influence of the nucleus. Examples of insulators are rubber, plastics, glass, and dry wood. This course introduces participants to electrical insulators and their physical properties. In addition, it describes the various uses of insulators as well as some of the materials that are used as insulators.	1	Intermediate
<b>Interior Lighting for Designers: Daylight and Filament Sources</b>	Available daylight is considered because its use in interiors greatly reduces the power consumed by electric lighting. In addition, light from the sun and sky and views to the exterior significantly enhance the quality of the interior environment and our satisfaction with it. Only at this point, after these considerations are carefully assessed and preliminary design decisions made, are you ready to select the electric light source(s) appropriate for each particular interior environment. In this interactive online course, two light sources are presented in their approximate order of introduction to the marketplace. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Interior Lighting for Designers: Design Factors</b>	This interactive online course begins with a thorough understanding of the human visual system: how the eye and brain work together to create our perception of the world around us. Much in the way you select background music to support the activities and environment of a room—classical music, jazz, or indie rock, for example. This course will describe how you establish the lighting composition to create a supporting psychological environment. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Fundamental
<b>Interior Lighting for Designers: Interior Illuminations</b>	Almost all electric sources generate light in a distribution poorly suited to architectural lighting. Methods of optical control of the primary light source are discussed in this course. This interactive online course will show you how to select the specific luminaires that will achieve your desired objectives from the wide range of available products in the marketplace. You will be able to create the lighting design and the lighting layout that communicates it. This course will define sustainable design as one of the cornerstones of effective lighting practice and list the maximum benefits to the occupants. Finally, this course will show how construction documents are produced to contain the designer's complete written and drawn plans and specifications to communicate with the utmost clarity all of the information required by the installing contractor to deliver the designer's intent.	4	Fundamental
<b>Interior Lighting for Designers: Low- and High-Intensity Discharge Sources</b>	In electric discharge lamps, light is produced by the passage of an electric current through a vapor or gas rather than through a tungsten wire as in incandescent lamps. The light production by discharge sources is more efficient than the electric heating method used in filament lamps. Discharge lamps used in architectural lighting are more efficient and have a longer life. This interactive online course will introduce you to the functionality of fluorescent lamps as well as the differences and uses of mercury vapor, high-pressure sodium, and metal halide lamps. We will cover the potential drawbacks of low-pressure sodium lamps and discuss how the selection of phosphors affects lamp color. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Fundamental
<b>Interior Lighting for Designers: Solid-State Lighting and Auxiliary Equipment</b>	This interactive online course begins with an introduction to solid-state lighting, or more commonly referred to as LEDs or OLEDs, and continues on to explore their uses, design, construction, and function. We will also take a look at the advantages and disadvantages of LEDs. In the second half of this course, we will take a look at the auxiliary equipment that is needed to supply the current and/or voltage to solid-state lights and other types of indoor lighting. We will look specifically at the three main categories of auxiliary equipment. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2015. All rights reserved.	1	Fundamental

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Title	Description	Hours	Level
International Building Code & More: About the Codes	A variety of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations that play a major role. The most nationally recognized codes, laws, and standards organizations are described in this chapter. Most of them are referenced and discussed throughout this book as they pertain to the interior of a building; and they are summarized in a checklist at the end of this course. While reading about each of these codes, standards, and regulations, keep in mind that not all of them will be enforced by every code jurisdiction. The jurisdiction chooses which code publications to use and the edition of each publication. For example, a jurisdiction could decide to adopt the 2009 edition of the International Building Code (IBC) or continue to use the 2006 edition, or a jurisdiction could decide to adopt the NFPA® 101, Life Safety Code, as a stand-alone document or to be used in conjunction with a building code. The jurisdiction could also make a variety of local amendments that add or delete clauses from a code. Knowing which codes are being enforced is necessary in order to research codes for a particular project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Fundamental
International Building Code & More: Code Officials and Code Processes	This course concentrates on the code process as a whole. It introduces the different types of code officials and the various steps that should be taken for a smooth approval of a design. It also discusses how to document the code information effectively and how performance and sustainability requirements need to be incorporated from the beginning of a project. An important thing to remember is that the interior of a building must be designed in conjunction with the codes, standards, and federal regulations required in that jurisdiction. The designer must apply the various code requirements properly and work in conjunction with the code official. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	1	Fundamental
International Building Code & More: Construction Types and Building Sizes	Construction types are very important at the time a building is being constructed. Structural engineers and architects must be thoroughly familiar with them to determine the construction systems and materials that can be used throughout a building—both exterior and interior. There are several considerations that go into choosing a structural system and a construction type, including building size and height, intended occupancy classification, affordability, and sustainability. Construction types become a consideration on interior projects as well. When working on an interior project that requires the reconfiguring of building elements, such as relocating walls, making changes to floor or ceiling conditions, or adding a ramp, it is important to be familiar with the different types of construction to determine what changes can be made to the existing building. This course includes a basic discussion of construction types, building heights, and floor areas as required by the codes. It includes how they are typically used for new construction and how they can affect an interior project. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
International Building Code & More: Family Residences, Existing Structures and Historic Buildings	This course reviews the similarities and differences in the building codes for family residences and existing and/or historic buildings. The building codes consider residential occupancies to be single-family residences and duplexes. Family residences do not have as many interior-related regulations as other buildings, but a number of interior codes and standards are still required. Codes will apply to interior projects in existing buildings and historic buildings the same way they do for a new building most of the time. This course explores the four categories that define an existing structure and the two additional conditions that identify an historic building. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
International Building Code & More: Finish and Furniture Selection	This course will begin by explaining the various types of finishes and furnishings as defined by the codes and then go on to describe the various finish and furniture standards and tests and their results. Afterwards, we will go over code requirements and sustainability and accessibility requires related to finishes and furniture. We will conclude this course by reviewing a checklist which will assist you with any project that requires finish and/or furniture selection. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	2	Intermediate
International Building Code & More: Fire Protection Systems	Fire and smoke are the primary threats to the safety of the occupants in a building. Fire and smoke can travel quickly both horizontally and vertically unless special efforts are made to prevent this from happening. The use of rated assemblies in this passive system of fire protection is considered the first step in controlling the spread of smoke and fire. This course will discuss the active fire-protection system and its components, which include detection, alarm, and extinguishing systems, and will provide a fire protection checklist at the end of this course. The overall aim of the fire-protection system is to detect a fire in a building or space, warn the occupants, and suppress the fire until the fire department arrives. If that fire can be detected quickly, occupants have more time to exit the building safely and with less panic. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	2	Fundamental
International Building Code & More: Means of Egress	The first half of the course concentrates on explaining the components of the means of egress. The second half of the course discusses how to determine the required quantities, sizes, and locations of the parts of the means of egress. Accessibility requirements are also discussed throughout the course and a means of egress checklist is provided at the end of the course. John Wiley & Sons, Inc. Copyright © 2011 All rights reserved.	3	Fundamental
International Building Code (IBC) - Assembly Spaces	This course will address the 2012 International Building Code® (IBC®) requirements applicable to the design and construction of assembly spaces. It will address the differences between the various Group A occupancies and how assembly uses may also fit within the business or educational occupancy classifications. The course will also cover the unique aspects of the code related to assembly uses including the ICC 300 Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, and the special egress provisions of Section 1028. International Fire Code® (IFC®) provisions related to places of assembly such as requirements for a fire watch, limitations on open flames, combustibles and finishes will also be addressed. Developed in Partnership with the International Code Council.	3	Fundamental
International Building Code (IBC) - Care Facilities Provisions	This course addresses provisions in the 2012 International Building Code® and referenced standards relating to the design and construction of care facilities. It focuses on the specific decision making needed to apply the provisions appropriately by highlighting the differences this building classification poses. Developed in Partnership with the International Code Council.	3	Fundamental
International Building Code Significant Changes to 2012 Edition	The purpose of this course is to cover the significant changes in the 2012 code and look at the differences between the 2009 and the 2012 codes to understand exactly how it affects enforcement requirements, how the provision may apply differently than it was applied under the 2009 code and how it might also affect the design requirements. Developed in Partnership with the International Code Council	3	Fundamental



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<b>International Snapshot on Sustainable Infrastructure</b>	The scientific community overwhelmingly agrees that global warming and changing climate patterns will become more disruptive and have detrimental impacts on essential sectors of our society. These changes, such as extreme weather events, rising temperatures, flooding and droughts, all significantly impact our infrastructure. We are faced with simultaneous threats of aging infrastructure, damage from a changing climate, lack of funding and political paralysis. So how do we respond? Looking around the world, who is taking action now and leading innovations on tackling the challenges of creating sustainable infrastructure systems. The aim of this course is to present a snapshot of this complex dilemma.	2	Fundamental
<b>Internet and Computer Policy</b>	As the internet grows, a touch of the screen can take you through boundaries previously only dreamed of. But do you know which boundaries it is okay to cross (or even encouraged) versus which to not even mention to you that now exist? Using application exercises and a rich multimedia process, this course will take you through basic internet protocol to keep you and your employees safe and focused.	0.5	Intermediate
<b>Interpersonal Communication</b>	Interpersonal Communication is a course designed to help supervisors apply the listening and speaking skills that are basics for good interpersonal communication on the job. After completing this course, participants should be able to describe three basic levels of listening, identify common mental habits that are barriers to effective listening, and describe how to use awareness of nonverbal communication to ensure effective interpersonal communication. They should also be able to describe common types of ineffective responses, explain what empathic responses are and how they can be used for effective interpersonal communication, explain what constructive feedback is and describe how it can be used for effective interpersonal communication, and describe techniques that can be used to deal with people who become emotional on the job. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Interviewing Skills for Employees</b>	What to wear? What to say? When to follow-up? The process of interviewing for a position can be nerve racking to say the least. Tell Me About Your Weaknesses takes you through a typical interview process and prepares you for the what you may encounter. Through application exercises and a rich multimedia process, you will learn top skills to ease your nerves and prepare you for any interview.	0.5	Intermediate
<b>Interviewing Skills for Managers: Conducting an Interview</b>	Can I ask this? Will she be a good fit? Who else should I invite to the interview? When you are on the other side of the table, there are still many questions to answer in order to have a good interview. Using application exercises and a rich multimedia process, you will learn the skills to conduct effective interviews in this timely course designed to help you get the right people in the right seats.	0.5	Intermediate
<b>Interviewing the Right Way</b>	There is nothing more important in the hiring process than the interview. The interview is an exchange of information between the candidate and the interviewer. It provides the candidate with the opportunity to sell him/herself, and management with the opportunity to sell the position and the organization. The importance of selecting the BEST person for a position cannot be over emphasized. The interview provides an opportunity for you to brand your company in the eyes of the potential employee, and to determine if the candidate is the right fit. The interview is a crucial process, that if done correctly, will ultimately help move your business forward. But if done incorrectly, could be very damaging to your company. This interactive, online course will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position.	0.5	Fundamental
<b>Interviewing the Right Way &amp; Managing the Millennial (RV-PGM145)</b>	The first module of this program will discuss the employment interview. It will cover the different types of interviews, and planning strategies to help you conduct successful interviews. This course will illustrate steps for conducting an interview, and provide examples of types of evaluations to use so you can choose the best person for the position. The second interactive module discusses how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	1	Fundamental
<b>Introduction to ASHRAE 189.1-2011: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	This three-hour, introductory course will introduce participants to the ASHRAE 189.1-2011 standard. The stated intent for the creation of this standard is to specify and provide minimum requirements for the location, design, construction, and operation and maintenance (O&M) of high-performance green buildings. This course will cover the fundamental requirements of the standard; explain how these requirements are met; outline challenges presented by the various components of this standard; and present the relationship of the 189.1 standard with other current standards (e.g., ASHRAE 55, ASHRAE 62.1, ASHREA 90.1) and criterion (e.g., LEED).	3	Fundamental
<b>Introduction to Net Zero Buildings</b>	Gaining particular momentum in the design and construction industry is the notion of Net Zero buildings. For many in the design and construction industry Net Zero is a lofty goal, and one not usually realized. This interactive webcast will focus on the concept of Net Zero, which has several variations of what the term means in practice. We will look at the practicality and marketability of a Net Zero building that uses no more energy than it generates. We will conclude with discussion of the world-wide application of Net Zero building.	2	Fundamental
<b>Introduction to Rain Gardens</b>	Rain gardens have become very popular, with good reason. You can create landscapes that add beauty, wildlife habitat, and interest to an area - while helping manage storm water more sustainably. You can use them to meet LID (Low Impact Development) requirements. This interactive online course will teach you how to significantly reduce the impacts of development and also aid in improving storm water quality.	2	Fundamental
<b>Introduction to Sustainable Design and Construction Using Green Globes</b>	What's the oldest sustainability rating system for buildings? It isn't LEED*! The roots of Green Globes go back before 1990 to the Building Research Establishment Environmental Assessment Method (BREEAM) developed in the United Kingdom. From there it expanded to Canada and thence to the U.S. It offers an online alternative and perhaps less expensive way to a certified sustainable building. This course provides an introduction to sustainable building design and construction and to the Green Globes system. It compares Green Globes and the U.S. GBC's LEED rating system. It also describes the path for professionals to become trained assessors. *LEED is an acronym for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council (USGBC).	1	Fundamental

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Introduction to Sustainable Roof Technologies	Roofs account for one of the largest areas of imperviousness on a site. Impermeable roofs impact storm water quality and quantity, air quality, the urban heat island effect, and the energy needs of the building. This interactive webcast focuses on how we can potentially rethink how we build our roofs to ensure energy efficient buildings, harness energy from the sun to help us reduce our reliance on fossil fuels (nonrenewable energy), manage storm water as a resource, increase air and water quality, and reduce greenhouse gas emissions. We will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. We will conclude with creative applications and site selection and placement considerations of sustainable roofs.	2	Fundamental
Introduction to the ISI Envision Rating System	The Institute for Sustainability's Envision rating system for civil infrastructure is quickly being adopted by public agencies for use in ranking organizational projects according to sustainable principles recognition and fulfillment during the design and planning stages. The Envision rating system is backed by three major national organizations responsible for the vast majority of US civil infrastructure: APWA (American Public Works Association), ACEC (American Council of Engineering Companies) and ASCE (American Society of Civil Engineers). This puts it squarely in the mainstream of thinking within the engineering community about future infrastructure needs. Envision is a relatively new initiative, but early indications are that it will gain wide acceptance as the national standard for assessing sustainability attained on civil infrastructure projects. This interactive online course will introduce you to the Envision Rating system and how it can help you organize your project in the sustainability realm. This course also lists the requirements on how to become an accredited Envision Sustainability Professional, Verifier, Trainer, or ISI member.	1	Fundamental
Introduction to Wetlands	Did you know that most all activities that impact wetlands are regulated? This interactive webcast will provide a basic understanding of wetland ecology, types, functions and management. We will discuss the economic, environmental, and social importance of wetlands. This course emphasizes wetland ecology, wildlife needs, enhancement of wetland functions, wetland determination, design and implementation, management, and monitoring considerations. This webcast includes a discussion of both the history of and recent changes to federal wetland laws and regulations. We will present an overview of the current issues and regulatory aspects of wetlands including discussion of the Clean Water Act (Section 401 and Section 404). This basic course will benefit developers, engineer, project managers, contractors, planners, land use officials and architects.	2	Fundamental
Investigation of Failures	This interactive online course identifies common causes of equipment failures and the steps involved with prioritizing the failure events and conducting failure investigations. The learner will be introduced to several investigative analysis tools used to forensically exam the failure and the importance of maintaining equipment histories.	0.5	Intermediate
Irrigation Practices for Commercial and Residential Sites	This Webcast is a full-spectrum discussion of irrigation practices. We'll start with history, discuss fundamentals, move on to proper design, and finish with alternative approaches to traditional irrigation methods. You'll receive valuable information on effective, efficient irrigation methodology for all residential and commercial needs.	2	Intermediate
Irritants, Corrosives and Sensitizers	In this interactive online course, you will be introduced to the hazard classification and categories of an irritant, a corrosive, and sensitizer. In addition, you will learn how to identify these chemicals so you can protect yourself, and others, from them. Guidance for excessive risk will be given for these substances in the workplace.	1	Intermediate
IT Pro to Manager: 01-Managing the Development of Technical Professionals	In LearnSmart's Managing the Development for Technical Professionals video training, technical professionals will learn the skills to survive and thrive in the workplace. Students will also gain a better understanding of what it takes to develop organizational skills, such as time management, performance management, and stress management.	1	Intermediate
IT Pro to Manager: 02-Successful Communication and Process Management Skills	In LearnSmart's Successful Communication and Process Management Skills video training, new and future managers will gain a clear understand of just how important clear lines of communication are -- with both employees and superiors. In addition, students will see how easy it can be to become overwhelmed, with so much to do in what never seems like enough time. By concentrating on effective time management, these individuals can avoid much of the stress and pressure that comes with a new position.	1	Intermediate
IT Pro to Manager: 03-Developing Leadership and Transitioning into Management	In LearnSmart's Developing Leadership and Transitioning into Management video training, you will learn that management isn't always so much about leading, as it is about pointing the way. It is your duty to point the way by instructing, giving feedback and sharing your experience. This course looks at leadership roles, styles and behaviors, showing how to build the strengths of your team and overcome personality differences, as well as conflict.	1	Intermediate
It's my Job! Career Growth	While you may have a boss and frequent interaction with HR (Human Resources) your career is YOUR career and therefore YOUR responsibility to manage. In this instructive course, learn key steps to identifying what you want out of your career and how to make it happen through application exercises and a rich multimedia process.	0.5	Intermediate
Janitorial Safety	Janitorial workers have many varied responsibilities. It would be easier to talk about what tasks they DONT perform, than what they actually do on a daily basis. Regardless of how many different tasks they perform or how busy they are, the simple truth is that their safety should be a companys top priority. This program trains your employees on how to identify the common hazards that janitorial staff face on a daily basis and the steps they can take to minimize risk. It also includes both English and Spanish versions on one DVD. Topics covered also include: Personal Protective Equipment Back Injury Prevention, Bloodborne Pathogens Slips, Trips and Falls Electrical Safety Chemicals	0.25	Fundamental
Job Hazard Analysis	This course provides basic guidelines for performing a job hazard analysis (JHA) in a variety of industrial workplaces. Based on industry best practices and OSHA guidelines, this course offers insights into why a JHA is a critical part of any safety program. From identifying common workplace hazards to accepted means of hazard control, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.43	Intermediate

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Kirchhoff's Laws	Kirchhoff's two laws reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. This course introduces Kirchhoff's voltage and current laws and explains how to use these laws to calculate the voltage and current of circuits.	1	Intermediate
Kitchen Safety	With the kitchen being one of the busiest departments in your establishment, employees may be tempted to take shortcuts when it comes to safety. New and experienced kitchen staff will benefit from watching this program as they learn the potential hazards present in the kitchen environment and what action to take to reduce the risk of accidents or injuries. Topics covered also include: Prevention of slips, trips and falls Knife use and safety Kitchen machinery Fire and burn prevention Chemical and hazardous materials	0.25	Fundamental
Laboratory Safety (BBLASA0CEN)	This course looks at the hazards that are found within the laboratory and some ways to protect lab workers from those hazards. Also included is an overview of the OSHA Lab Standard, the elements of a Chemical Hygiene Plan, and some of the basic rules of good chemical hygiene. Chemical storage requirements and some general procedures to follow in case of an emergency are also covered. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Ladder Safety	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.48	Intermediate
Ladder Safety	How much training have you had to use, store, and maintain a ladder properly to prevent falls and injuries? Working on ladders is a necessary part of most jobs in construction, maritime, and general industry. However, the use and care of ladders are not always as easy as it appears for the worker. Training is necessary to know the tolerances of the ladder, its safety features, and how to use the ladder. There have been many reported deaths and serious injuries from improper ladder use such as falls, electrocutions, and slips. This interactive online course will give you the information needed to be aware of the hazards related to ladders and best practices for using ladders.	0.5	Intermediate
Ladders and Stepladders for Canada	Ladders are tools commonly used to gain access to higher levels that are otherwise unreachable. When maintained properly and used according to safety guidelines, they are a simple and effective tool. However, each year thousands of workers are either injured or killed in ladder related accidents. This course describes different types of ladders, as well as ladder construction, ladder selection, height requirements, weight capacity, hazardous conditions, inspections, ladder setup, safe practices when using ladders, storage, and maintenance.	0.5	Intermediate
Land Development Projects: Design of Infrastructure	Land Development projects shape our communities and in many occasions create them. The primary goal of this interactive, online course is to assist planners, architects, engineers and contractors in developing a framework for optimizing infrastructure design that supports land development projects using guidelines from AASHTO, Urban Land Institute, Ten State Standards and other public and private organizations. The diversity of land development projects mirror our needs as a society. Even though they can be classified as commercial, residential, industrial, professional, institutional or governmental in nature they still need to be sustained by the same type of civil infrastructure. As our cities expand and population densities increase our infrastructure network has had to increase and adapt to serve our growing needs. This increase in capacity requirements has made ever more important the need to have efficient infrastructure designs.	1	Fundamental
Land Development Projects: Developing Feasibility Studies	Land Development projects are widely diverse and require a thorough knowledge of local regulations, physical site characteristics, and features surrounding the subject property. This interactive online course will teach you about different types of Land Development projects and their respective operational needs. You will learn about local, state and federal development regulations for projects within the U.S. The primary goals of this course are to familiarize planners, architects, engineers and contractors on key basic steps for developing feasibility studies that follow guidelines from the Urban Land Institute, National Home Builder's Association and other public and private organizations.	2	Fundamental
Land Development Projects: Grading and Drainage Design	Land development projects cover a wide range of needs for our communities, thus they have a wide range of configurations. Earthwork is one of the key construction costs for land development, thus an efficient grading design is an integral part of the site civil design. Grading is also tied in directly into several other components of the site civil design such as drainage, transportation, sanitary sewer and building finished floor elevation. In addition, the grading design needs to be sensitive to the end-users of the project. The primary goal of this interactive online course is to assist planners, architects, engineers and contractors in understanding the key components of an efficient grading design using guidelines from AASHTO, Urban Land Institute, National Home Builder's Association and other public and private organizations.	1	Fundamental
Landfill Gas Collection and Treatment Systems	Over two hundred million tons of garbage are generated in the US every year. Over 97% of this garbage ends up in landfills. This garbage decomposes, potentially releasing harmful gases to the environment. Without landfill gas collection and treatment systems, the effect of these releases would be severe. This interactive, online course provides an introduction to the theory of landfill gas collection and treatment systems and presents practical parameters that can be utilized to develop detailed system designs.	3	Fundamental
Laser Safety	Lasers have become an integral part of society. Due to their ability to carry large amounts of data with little or no signal degradation over long distances, they are commonly used in fiber optic communication systems. Use this course to learn safe work practices around Light Amplification by Stimulated Emission of Radiation (LASERS). This course covers the theory of laser light, how lasers work, types of lasers, laser classifications, laser hazards, low-power laser hazards, and laser pointer safety guidelines.	0.25	Intermediate
Lead Awareness	Before you cut, grind, or burn through any painted surface at work or at home, better make sure you know what you're dealing with. Protect yourself and your team from unintentional lead exposure with this course that defines what lead is and provides information on its history and usage, reduction efforts, lead exposure, effects, detection and treatment, personal protective equipment (PPE), and prevention methods.	0.25	Intermediate
Lead Contamination of Public Water Systems	Lead contamination of drinking water is a major topic of concern across the country, particularly in areas with aging lead pipes. Lead contamination in Flint, Michigan; Washington, DC; and Newark, New Jersey, has focused attention on America's decaying pipes. At least \$384 billion of improvements are needed to maintain and replace essential parts of the country's water infrastructure to through 2030, according to the US Environmental Protection Agency. While these improvements are underway, treatment technologies can be utilized to significantly limit the migration of lead into the potable water supply. This interactive online course will describe these technologies and opportunities for implementation.	1	Fundamental

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<b>Lead Safety in Construction: Keeping You Safe and Compliant</b>	Lead exposure is a major health issue. Exposure to lead can cause brain damage, paralysis, kidney disease and even death however, there are many methods to protect workers from exposure. In this one-hour interactive course, we will discuss these and other acute and chronic symptoms. We'll discuss how lead is used in construction and identify the workers that are the most vulnerable to these risks. You'll be introduced to OSHA's Lead Standard on the responsibility of employers and how it's designed to protect workers. Finally, we'll go over the methods to reduce exposure to lead, including engineering controls as well as the proper protection for workers such as the use of personal protective equipment.	1	Fundamental
<b>Lead with Strengths</b>	It is common to focus on our weaknesses, however weakness will not make you excel. If you want to be an effective leader, it is important to focus on and learn to lead with your strengths. Everyone has strengths. Things they are naturally good at. Do you know your strengths and how they can help you to be an effective leader? This guide will teach you how to identify and lead with your strengths.	0.5	Intermediate
<b>Lead-Based Paint Safety</b>	This course covers basic guidelines and best practices for working safely around lead-based paint. Even though U.S. legislation passed in 1978 has dramatically limited the allowable lead levels in paint, lead-based paint is still present in many residential and commercial buildings. Based on OSHA standards set forth in 29-CFR 1910.1025 related to lead exposure in the workplace, this course is designed to help workers recognize and avoid the hazards associated with lead-based paint.	0.5	Intermediate
<b>Leading Engaging Zoom Meetings</b>	Maximize your meetings in Zoom. Meeting virtually doesn't have to be boring talking heads on a screen! If you know how to use the tools Zoom provides, you can lead engaging meetings where everyone can participate. Learn the settings you'll need to begin and the basics for sharing your screen, using whiteboards, annotation, and polls. Then, move into more complex meeting structures like breakout rooms for small group collaboration and how to manage them. End it with guidelines to heighten interest, participation, and engagement.	1	Intermediate
<b>Leak Detection for Roofs</b>	Leak detection is an important job. Utilization of both scientific and artful techniques enables you to detect a leak in the least time with the least work. To do this, you must first understand the roof system that you are looking at, and know all its components and their function. This 1-hour interactive online course details specific techniques of detecting leaks in various waterproofing media, with an endeavor to give the professional practical and usable techniques that they can employ in the course of handling this important job. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Lean Manufacturing: Continuous Improvement and the PDCA Cycle</b>	Did you know the Plan-Do-Check-Act (or PDCA) cycle is the correct methodology to follow when solving problems and managing changes? The PDCA cycle is an ordered sequence of four stages, which will take a process condition from problem-found to problem-solved. This interactive online course provides an overview of the PDCA cycle used as a continual improvement procedure, promoting the dominion of the tools needed for solving problems and managing changes. This course will define the phases of PDCA, explain how to use it as a continual improvement procedure, and list the benefits of implementing PDCA into your processes.	0.5	Intermediate
<b>Lean Manufacturing: Determining the Voice of the Customer</b>	The Voice of the Customer (VoC) is a term used in business to describe customer's expectations and requirements. It can also represent customer's feedback about their experiences with, and expectations of, a rendered product or service. Others define it as the statement made by the customer about a product or service. This course discusses the importance of the Voice of the Customer to a business success and describes how to anticipate and meet customer needs and requirements once this data is captured.	0.5	Intermediate
<b>Lean Manufacturing: Kaizen</b>	Did you know businesses are implementing Lean initiatives so they can remain market leaders? If a business is the market leader today, but fails to continually improve its products and services, eventually, a competitor will either make it quicker, better or cheaper, taking its customers away. To meet today's challenges, businesses are continually seeking out methods to increase quality and reduce waste. Among the options, companies are improving their quality system, and implementing Lean initiatives and new processes at their facilities. Many companies are embracing the Kaizen structured approach to continually improve processes. This interactive online course will cover the continuous improvement process known as Kaizen. Kaizen measures improvement by working on an existing problem and following through with actions to correct it. It is not just a one-time event; it is a process that can occur every day.	0.5	Intermediate
<b>Lean Manufacturing: Kanban</b>	Did you know the word Kanban is of Japanese origin and translates to billboard or signboard? It is one of the Lean methodologies used to reduce wastes, such as waiting, overstocking, overproduction, and excess motion in a production process. It ensures parts are finished exactly when they are planned to be without interruptions caused by a lack of raw materials. This interactive online course provides an overview of the Lean manufacturing tool Kanban. Kanban uses visual signals to communicate the need for raw materials or parts only when there is a demand for them. This ensures that you only produce what customers want when they want it.	0.25	Intermediate
<b>Lean Manufacturing: Poka-Yoke</b>	This training course defines the manufacturing tool Poka-Yoke and provides approaches to the use of mistake-proofing devices as continual improvement initiatives to create a positive impact on the quality of your products so that you can meet specifications and make an impact on waste reduction.	0.25	Intermediate
<b>Lean Manufacturing: Pull Systems</b>	This course will introduce you to a manufacturing principle that promotes the initiation of tasks, or utilization of components to meet actual demands, which in turn empowers companies to optimize resources and reduce waste. A pull system is contrary to a push system. While we'll introduce and define the two theories, this course will focus on how to design and implement a pull system in your standard processes.	0.5	Intermediate
<b>Lean Manufacturing: Standardized Work</b>	This training course provides an approach to managing documented instructions, known as standardized work. This lean manufacturing tool provides a clear communication of steps to be met when performing a job, allowing sustainability of continual improvements in the manufacturing setting.	0.5	Intermediate
<b>Lean Manufacturing: Value and Waste</b>	Value represents the need of the customer, the voice of the customer. If companies don't pay attention to value, they may end up with unhappy customers walking away from them, resulting in a low brand reputation. Lean thinking enables companies to understand what customers are willing to pay for. If it is of no value to customers, then it is considered waste. Waste consumes energy, money, and is of no value to the customer. This interactive online course provides an approach to how Value and Waste are perceived by customers and how to remove steps that do not create value, promoting only those activities that do provide value.	0.5	Intermediate
<b>Lean Manufacturing: Value Stream Mapping</b>	Have you ever heard of value stream mapping? Value stream mapping (VSM) is a Lean tool that allows you to create a visual representation, from order receipt through to the arrival of the product to the customer, without concentrating on the period of lead time taken up by manufacturing. In this interactive online course, we will review the concepts of value stream mapping, the steps in value stream mapping, and list the benefits of this useful tool.	0.5	Intermediate

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Title	Description	Hours	Level
<b>Lean Manufacturing: Visual Management</b>	Are you looking for a way to visually represent standards in your facility? Are the signs and charts you currently have posted efficiently managing a condition? In order to provide effective visual management, metrics and charts must represent accurate results in real-time. Visual management should provide an overview of status, or results with clear and evident data. This interactive course will introduce you to a manufacturing principle known as visual management, which provides a visual approach for communicating information.	0.25	Intermediate
<b>LEED v4 - Certified Buildings Under the O&amp;M and BD+C Categories</b>	This webcast will provide essential information regarding latest updates for LEED certification - LEED v4. It's critical to stay current with this green building rating system that has revolutionized how we design, construct, operate, and maintain buildings and communities. LEED has created a complete industry dedicated to energy savings and efficiency. As a result of viewing this webcast, you will have a better understanding of the core areas of LEED certification, and how the program helps meet full performance potential with existing buildings.	1	Fundamental
<b>LEED v4 - Operations and Maintenance</b>	Did you know that Leadership in Energy and Environmental Design or LEED Version 4 is now officially adopted by the United States Green Building Council (USGBC)? Since the first LEED Rating System launch, sustainable design and the idea of sustainable design has gone from a catchphrase to actually a prerequisite on how we build, maintain, and operate our buildings. The goal of sustainable development is to create healthy environments through things like responsible planning, design, construction, operation, and maintenance of those buildings. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically covers LEED for Operations and Maintenance and focuses on the ongoing operations and maintenance of existing commercial and institutional buildings.	2	Fundamental
<b>LEED v4 and Data Center Construction</b>	Although the two aspects of this topic - Data Centers and Green Design - seem almost antithetical to each other, a properly designed data center makes good use of sustainable design. With a limited amount of incremental effort, sustainable design efforts can be paired with a good working knowledge of LEED to provide a LEED certified critical facility environment.	2	Fundamental
<b>LEED v4 and the Future of Green</b>	The US Green Building Council has just unveiled its 4th version of the LEED certification standards known as LEEDv4. In this course, we will focus on the differences between LEED v4 and its predecessor, LEED 2009. The course will cover the reasoning behind the new update as well as describe new credit categories and the changes that are to be implemented per individual credit. The course goes on to examine LEED v4 technical content and point distribution. The overall objective of the course is to take a comprehensive look at LEED v4 standards of New Construction relative to previous LEED versions and come away with a good working knowledge of its new project criteria and its impact on the future of sustainable new construction.	1	Intermediate
<b>LEED v4 for Commercial Office Buildings</b>	This interactive course reviews the significant changes in the new LEED-NC v4 Rating System that impact commercial office building types. In this course, we will discuss the credits that provide the biggest bang for your buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Existing Buildings: Operation &amp; Maintenance (EBOM)</b>	This course is going to focus on LEED EB (Existing Buildings - Operations & Maintenance). This course will provide you with essential knowledge about LEED, which is an objective, unbiased, 3rd party green building rating standard. The acronym LEED stands for Leadership in Energy and Environmental Design. LEED was introduced as the standard developed by the United States Green Building Council, or USGBC, upon its founding in 1993. Since then, LEED has grown enormously, USGBC has also introduced the GBCI, or Green Building Certification Institute, which is responsible for accrediting personnel with the LEED-AP designation, for certifying buildings, at the LEED Certified, Silver, Gold, or Platinum levels, and for interpreting criteria, updating information, and generally ensuring day-to-day operations for the LEED system. We will be discussing the LEED Rating Paths, of which there are several, the intent of which has been to create as many specifically tailored and appropriate options as are reasonable to allow for ease of guidance and certification in the building design, construction, and operations processes. We'll review the variously available tools and resources that exist to support the efforts of project teams as they seek LEED certification, and of course we will delve significantly into our main focus, which is LEED EBOM, or Existing Buildings Operations & Maintenance.	2	Fundamental
<b>LEED v4 for Healthcare Facilities</b>	This course reviews the greatest changes in the new LEED-NC v4 Rating System that would impact healthcare projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions.	1	Fundamental
<b>LEED v4 for Hospitality Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact that hospitality projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for Interior Design + Construction</b>	Green buildings, when operated as intended, improve working environments, promote higher productivity, reduce energy and resource costs, and prevent system failures. This interactive course discusses the importance of a facility that has been designed and built as not only green with energy efficiency and water consumption technologies but also allows us to breathe easy, give us views of nature and daylight, and makes us healthier. LEED for Interior Design and Construction (LEED ID+C) enables project teams who may not have control over whole building operations to develop indoor spaces that are more comfortable for users and more mindful of our resources.	1	Fundamental
<b>LEED v4 for New Construction Projects</b>	This course will describe how to navigate the new credits and prerequisites under the new version of LEED. It will address the changes from LEED 2009 in each credit category and how they will affect new projects registering under Version 4.	2	Fundamental
<b>LEED v4 for Retail Projects</b>	This course reviews the greatest changes in the new LEED v4 Rating System that would impact retail projects and what credits provide the biggest bang for the buck. Real life relational stories are included to help reinforce some of the concepts and actions. We'll also review when the NC Rating System should be used or when the project is more aligned with the CI Rating System.	1	Intermediate
<b>LEED v4 for School Buildings</b>	In this course, we'll review some of the changes in the new LEED-NC v4 Rating System that impact schools (K-12) and what credits provide the biggest bang for the buck. We'll also review which educational facilities apply to the Schools Rating System found in the Building Design + Construction platform.	1	Fundamental

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Title	Description	Hours	Level
<b>LEED v4: Building Design and Construction</b>	Are you aware that Leadership in Energy and Environmental Design, or LEED Version 4 is now officially adopted by the United States Green Building Council? The goal of sustainable development is to create healthy environments through environmentally responsible planning, design, construction, operation, and maintenance. The heart of the sustainable building movement is the USGBC LEED Green Building Rating System for buildings. This course specifically today covers the LEED for Building Design and Construction, known commonly as LEED BD + C. This course discusses the background of the LEED BD + C credit rating system and covers recent changes to the system, including the addition of new market sectors, simplified LEED credit submittal requirements, step-by-step reference guide materials with videos and tutorials, and a more intuitive technology platform. Other recent changes include the focus on outcomes to aid in building management, as well as the addition of new impact categories	1	Fundamental
<b>LEED v4: Neighborhood Development</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Neighborhood Development Rating System (LEED ND) and discuss recent updates to the system. LEED ND integrates the principles of smart growth, new urbanism, and green building into environmentally, socially, and economically responsible neighborhood planning. This course covers each LEED ND credit category which focuses on where communities/neighborhoods are built, how they are designed, and how they ultimately perform. The course will conclude by defining the credentialing path for professionals – from the credentialing processes and continuing education requirements, through the LEED ND AP exam preparation and test completion. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential to the future of all green building projects.	1	Fundamental
<b>LEED v4: Residential Homes</b>	The goal of this course is to describe Leadership in Energy and Environmental Design (LEED) for Homes Rating System and discuss recent updates to the system. LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes. This presentation discusses the basics of the LEED for Homes Rating System, including major proposed updates to the v.4 rating system and how it applies to single / multi family, low/mid/high rise, new and rehabbed homes and residential buildings, apartments, developments and dorms. Understanding of both LEED credentialing for professionals and the LEED credit categories for projects are essential for all green building projects.	1	Fundamental
<b>LEED: Water Efficiency</b>	What do you know about getting LEED certified in Water Efficiency? This course introduces you to the LEED Rating Systems - Water Efficiency and Innovation and Design Sections. This webcast gives you an overview of the rating system, the prerequisite for Water Use Reduction and descriptions of the available credits.	1	Intermediate
<b>Legionella Prevention and Control</b>	In 1977, the Centers for Disease Control and Prevention (CDC) identified a condition known as Legionella pneumophila, which is a waterborne disease responsible for 34 deaths at an American Legion convention in Philadelphia. This interactive online course presents the causes and risk factors for Legionella contamination and some of the problems associated with Legionella in water systems in commercial buildings. Other topics include the ANSI/ASHRAE 188-2015 Standard and testing methodology and frequency.	0.5	Intermediate
<b>LID Technologies</b>	A low-impact development (LID) design approach is defined as a combination of hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. This course will provide an overview and introduction into the philosophy, objectives, various design approaches, economic and environmental benefits, and management practices of low-impact development. Specifically, course will demonstrate how to develop land and maintain the predevelopment hydrologic regime by using current structural and nonstructural storm water management technological approaches.	2	Fundamental
<b>Lighting Controls Essentials</b>	Did you know that project managers who recognize and comprehend lighting controls can communicate more effectively with their engineer? Lighting control increases comfort, improves health and fosters function. Modern lighting control systems are heavily electronic in nature and have great versatility and a variety of functions. This interactive online course covers the big picture of lighting controls: what they are, how they look, what they do, and how to apply them in construction projects. You will see examples of relays and contactors you may come in contact with. This course also presents ladder diagrams with explanations as well as lighting control panels.	2	Intermediate
<b>Line Breaking Safety</b>	Line breaking is the intentional opening of a pipe, line, or duct that contains or has contained material capable of causing injury. OSHA requires that all members of a line breaking team understand the hazards related to the material and equipment involved. This course illustrates common hazards of line breaking and provides suggested preventative measures for this type of work. Based on general industry best practices and OSHA regulations, this course covers basic safe work procedures recommended by industry professionals when planning or working on a line break.	0.5	Intermediate
<b>Line-of-Fire Safety</b>	Line of fire is a term used to describe being in harm's way. A person in the path of an object or hazardous energy is in the line of fire. Over one-quarter of all workplace fatalities are the result of line-of-fire incidents. This module discusses how to identify common line-of-fire hazards and how to protect yourself and others from those hazards.	0.25	Intermediate
<b>Liquefied Natural Gas (LNG): Emerging Issues in the LNG Industry</b>	In this online interactive course, we provide an overview of some of the key emerging issues in the LNG industry including whether North America will become a major LNG exporter, the potential impact of the Panama Canal expansion project on LNG trade, the growing role of floating LNG (FLNG), the potential influence of the Gas Exporting Countries Forum (GECF) to act as a Gas OPEC, and the emergence of LNG as a shipping and vehicle fuel to aid in emission reduction efforts around the world.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Evolution of LNG Markets &amp; Primary Demand Regions</b>	The first ever US-UK shipment of LNG in 1959 on the Methane Pioneer demonstrated that large quantities of natural gas could be transported safely across the ocean and opened up the possibility of transporting large volumes of natural gas from otherwise stranded fields to distant destinations based on consumer demand. This interactive online course will discuss the evolution of LNG markets, including the history of LNG and an overview of the three major LNG Markets - Asia-Pacific LNG market, the European LNG market, and the North American/Atlantic Basin LNG market, which includes North America, South America and Latin America.	2	Intermediate

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Title	Description	Hours	Level
<b>Liquefied Natural Gas (LNG): Global LNG Demand &amp; Emerging Demand Markets</b>	Until the late 1990s, LNG was a niche industry operating mostly in the Asia-Pacific region. As the world entered the 21st century, however, global demand for LNG surged in a perfect storm created by the industrial and commercial boom around the world that resulted in an ever-growing appetite for all energy resources. Between 2000 and 2008, the LNG industry entered a period of rapid growth with huge increases in supply coming from a growing number of LNG producing countries. However, between 2008 and 2009, the world endured the worst recession since the Second World War with demand for all energy dropping significantly. In 2010, as global economies appeared to be emerging from the recession, global natural gas demand resumed its long-term upward trajectory with the IEA projecting that natural gas will be the only fossil fuel for which demand is higher in 2035 than in 2008. While the ultimate wildcard for all natural gas demand is the pace and strength of the global economic recovery, the long term outlook for natural gas and LNG remains strong. In this interactive online course, we will identify LNG demand drivers. We will examine existing and emerging Asia-Pacific and European importers, and discuss the reasons behind the increased LNG demand in Latin America. We will also consider the natural gas puzzle faced by the Middle East/North African region. Lastly, we will investigate the market trends causing the U.S. to shift from LNG importer to LNG exporter.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Projects &amp; Players</b>	How well versed are you in the Liquefied Natural Gas (LNG) industry? Do you know where and how much is produced? In this interactive online course, we will examine the specifics of the global LNG mega projects in Qatar and Australia, and also discuss new players and projects in countries such as Russia, Peru, Yemen, and Papua New Guinea.	2	Intermediate
<b>Liquefied Natural Gas (LNG): Global LNG Supply</b>	Although worldwide natural gas resources are sufficient to meet projected increases in demand, almost half of the world's proved natural gas reserves are found in just three countries: Russia, Iran and Qatar. With the world's largest proved natural gas reserves, the Middle East and Africa are expected to account for 72 percent of the increase in natural gas exports by 2030, mainly to supply Europe and North America, although Australia is also emerging as a key LNG exporter and also potentially the US and Canada. Understanding where new LNG supply will come from is one of the critical aspects of understanding the dynamics of the global LNG industry. This interactive online course provides a description and overview of key LNG supply projects around the world, discusses the impact these projects will have on the LNG global market, and identifies some of the challenges that may be faced by new projects.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Globalization of LNG</b>	The growth in LNG trade over the past few years has led many to question whether the LNG markets have become globalized and whether LNG could ever trade as a global commodity. This interactive online course discusses the increased globalization of LNG markets and whether LNG could someday trade as a global commodity. The growth of LNG trade will be examined as well as the traditional oil-linked pricing structure for LNG. Recent pricing issues and the growing spot and short-term LNG market will also be discussed.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Natural Gas &amp; LNG in the 21st Century</b>	Policy makers around the globe continue to grapple with issues related to energy security, energy affordability, and an expected increase in demand for all energy sources. At the same time, concerns about global climate change and reducing greenhouse gas emissions remain in focus as the world struggles to define the path to a sustainable energy future. Since natural gas is an abundant, affordable, and clean-burning fuel, many countries around the world are increasingly looking to natural gas to play a key role in powering the future. The prospects for natural gas are so promising that the International Energy Agency (IEA) has suggested that the 21st century could be the Golden Age of Gas with demand for natural gas projected to increase by more than 50 percent from 2010 levels and account for over 25 percent of the world's energy supply mix by 2035. This interactive online course explores the growing role of LNG as the glue linking global gas markets and identifies the key opportunities and challenges for the LNG industry in the context of a number of competing drivers, including economic development, energy security, and climate change.	1	Intermediate
<b>Liquefied Natural Gas (LNG): Safety &amp; Environmental Sustainability of LNG</b>	Do you have a solution to meet an ever-growing energy demand around the world? Many governments are looking to Liquefied Natural Gas. Not everyone agrees the LNG is the best answer. They claim there are serious safety and environmental impacts that negate the benefits of LNG as a fuel. In this interactive online course, we analyze how LNG can play a role in a sustainable energy future. Specifically, we will focus on the safety issues and environmental issues that accompany the use of LNG.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The Impact of Shale Gas on Global Gas Markets</b>	The tremendous boom in US shale gas has been a game changer all over the world. What do you predict for the future? This online interactive course will discuss shale gas. We will describe the markets as well as importing and exporting liquefied natural gas worldwide. We will focus most on North America.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The LNG Value Chain</b>	The LNG value chain comprises a complex set of activities, all of which are capital intensive and require specialized knowledge in order to execute successfully. This interactive online course discusses the main stages of the LNG value chain - liquefaction, shipping and regasification and identifies the technologies used in these processes. Various LNG project structures and some basics of LNG measurement will be covered as well. The information in this course on the LNG value chain is designed to provide you with the foundation to develop a successful LNG project.	1	Intermediate
<b>Liquefied Natural Gas (LNG): The Role of Shale Gas in the Golden Age of Gas</b>	How much do you know about shale gas? Since the development of unconventional gas resources is different and more challenging than conventional resource development, a basic understanding of the different types of gas reservoirs is helpful in order to appreciate the difficulties involved in extracting natural gas from certain types of reservoirs. In this interactive online course we will discuss the shale gas revolution, its production, and the technologies used to unlock it from shale.	1	Intermediate
<b>Load Securement</b>	The North American Cargo Securement Standard provides the basis for the rules and regulations covering load securement on motor vehicles in the United States and Canada. This standard was created because unsecured loads can cause loss of life and load, cargo and vehicle damage, and accidents with other vehicles. This course covers the purpose of load securement, preparing loads, methods of load securement (including tie-down assemblies), working load limits, tie-down types, and safety.	0.5	Intermediate

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Title	Description	Hours	Level
Lockout Tagout for Affected Employees	Lockout/tagout can be defined as the placement of a lock or tag on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be re-energized until the locking device is removed. While an authorized person usually performs the lockout, an affected employee is an employee that is affected by the lockout. This course will focus on the general awareness needed for these affected employees.	0.3	Intermediate
Lockout Tagout for Authorized Employees	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.47	Intermediate
Lockout Tagout for Canada	Don't count on luck, count on the lock. Protect yourself and your team from unintentional exposure to all types of hidden energy with this course that describes hazardous energy types and energy control procedures, including preparation, shutdown, isolation, lockout, stored energy check, verification, and release of lockout. Additional topics include lockout hardware and administration of an Energy Control Program (ECP). This course is intended for the authorized employees who typically perform lockout/tagout procedures.	0.5	Intermediate
Lot 21 -- A Dave Gibson Lot and Block Case	This 2 hour online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course makes up a portion of the larger 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Lubrication Basics	Whenever two moving, solid surfaces contact each other, there is friction which creates heat and leads to destructive wear. Lubrication is the process of introducing a lubricant substance between the surfaces in order to reduce that friction and wear. A lubricant can be a solid such as molybdenum disulfide or Teflon; a semi-solid, such as grease; a liquid, such as oil; or even a gas such as air. This module will focus primarily on the industrial uses of liquid oils and grease as lubricants.	0.5	Intermediate
Machine Guarding	This course covers the importance of having industrial machine hazards properly guarded and protected against. This course is aligned with OSHA General Industry standards and industry best practices. It is meant to be used as an introductory or refresher course for general industry workers who will be operating or working near industrial machinery.	0.62	Intermediate
Magnetism and Electromagnetism Basics	A magnet is a material that attracts other metals. About 4,000 years ago, it was found that a stone called magnetite attracted pieces of iron. It was later found that a long piece of magnetite would align itself with the north and south poles of the earth. Experimentation showed that one end would always align with the North Pole and the other end with the South Pole. This module will discuss the principles of magnets, magnetic fields, and types of magnets.	0.25	Intermediate
Maintenance of Air and Oil Circuit Breakers	Circuit breakers are devices that open or close a set of electrical contacts to interrupt or complete an electrical circuit. A switchgear is a self-contained, enclosed assembly of circuit breakers and related components. Both circuit breakers and switchgear serve to protect plant circuits from various electrical problems. They can switch power on and off, and they can isolate circuits on which work is being performed. Electrical maintenance personnel are responsible for keeping circuit breakers and switchgear working properly and for performing periodic inspections and any necessary repairs. This course covers the operation and maintenance of high-voltage circuit breakers and switchgear (4 KV and above) that are typically used for in-plant distribution of electrical power. Many high-voltage circuit breakers used for transmission purposes consist of three single-phase breakers connected to a common operating mechanism. However, the distribution breakers discussed in this course are three-phase breakers.	1	Intermediate
Maintenance of High-Voltage Circuit Breakers	After completing this course, you should be able to describe the basic operation of an oil circuit breaker, an air-magnetic circuit breaker, a vacuum circuit breaker, and an SF6 gas puffer circuit breaker. You should also be able to explain how each type of circuit breaker extinguishes an arc, and you should be able to describe basic procedures for racking out high-voltage circuit breakers and performing routine maintenance and testing on them.	1	Intermediate
Maintenance of Low-Voltage Circuit Breakers	Circuit breakers and switchgear are among the most common, yet critical, components of an industrial electrical system. Circuit breakers are devices that interrupt or complete electrical circuits. They protect systems and equipment from the effects of excessive current, and they provide a way to switch power on and off and isolate circuits or equipment on which work is being performed. Switchgear is basically a self-contained, enclosed assembly of circuit breakers and auxiliary devices. Part of your responsibility involves keeping circuit breakers and switchgear working properly. So, it is important for you to have a good understanding of how circuit breakers work and the types of maintenance procedures that are typically performed on them.	1	Intermediate
Maintenance Safety	Industrial facilities rely heavily on complex equipment. To run efficiently and effectively, the equipment needs regular maintenance. However, performing maintenance can introduce many safety hazards. This course addresses best practices for safely maintaining and repairing equipment.	0.67	Intermediate
Making Humor Work at Work	Being able to laugh and have fun in the workplace is a benefit to employees, their supervisors, and their companies. In addition to being just plain old fun, laughter is good for business. Studies show that employees who love to laugh are more creative and more productive. They make better decisions. And they get along better with their co-workers. LearnSmart's Making Humor Work at Work video training course shows workers how to problem-solve, defuse resistance to change, disarm anger, and improve and increase memory through the effective use of humor on the job.	1	Intermediate



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Title	Description	Hours	Level
<b>Making the Flood Zone Determination</b>	Mention the words flood zone determination company to a floodplain manager, surveyor or engineer involved with floodplain management, and you are likely to hear a variety of questions about how and why flood zone determination companies make the decisions they do. This 3-hour online course reviews the research process used by these determination companies, gives you a hand at making determinations with the same information that map researchers use and provides information on the association that links the companies who do 90 percent of the determinations nationwide. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Management 101: 01-Introduction to Management</b>	You will learn about the different responsibilities you have as a manager such as project manager, coach, and leader and the duties you'll have to perform. To be successful, you'll have to establish your authority and make good decisions by following the seven step decision-making process. Discover how to schedule time for personal development, and to analyze tasks you and your team must complete using the important/urgent matrix. Additionally, you'll also consider how your employees learn, and consider how to respond to drivers and resisters to change. Overall, you will be better equipped as a new manager.	1	Intermediate
<b>Management 101: 02-Leading and Communicating as a Manager</b>	Aside from adapting to a new role with increased responsibilities, new managers must learn to be leaders and explore how to communicate effectively with employees, fellow managers, and senior executives. To train in these areas, you will learn the five primary leadership roles that managers serve in business. Then, you'll go through discussions about leading teams concentrating on how to lead them, about how to know when your team is being effective, and about the different stages of team development. Next, you'll look at effective delegation. You'll also examine Maslow's hierarchy and consider how that relates to an individual's performance and behavior. Finally, you'll study how communication works and principles for chairing a meeting.	1	Intermediate
<b>Management 101: 03-Making an Impact as a Manager</b>	Making an Impact as a Manager is designed to help new managers lead their employees and companies on to bigger and better things. Understand corporate strategy and identify exactly what it does; and find explanations on how to use a SWOT analysis to shape the company's culture. You will discover the importance of doing a STEP analysis to provide a framework for addressing obstacles, as well as go through discussions on the ways to improve operations and the three E's to examine performance. You'll also learn about different methods of conflict resolution, and when to use them. Additionally, you'll walk through the three-step process of a control loop and how to meet the needs of various. Finally, you'll gain 10 tips for improving employee commitment, empowerment, and retention to formulate an excellent team through which you can increase efficiency and impact.	1	Intermediate
<b>Management 101: 04-Taking Control as a Manager</b>	Taking Control as a Manager is designed to help new managers understand how to relate to fellow managers and other employees and how to deal with the pressures that come with the position. You will look at the seven aspects of management to invest in and different things you can do as a new manager to help win your team over; discuss performance management and using budget as a tool of control; go through the steps you can take to help employees overcome their insecurities and feel more comfortable on the job; and understand the common causes of managerial stress and strategies to overcome them. You will also learn the best practices to maintain control of your department.	1	Intermediate
<b>Managing a Millennial</b>	Millennials are the generation born between 1980 and 1994 who have been given a reputation that says they have an inborn distrust of hierarchy and bureaucracy, and are prone to job-hopping. But is this reputation actually true? To manage your Millennial employees, you must understand the group and how they compare to other generations before them. How to manage and motivate what some call the trophy generation is a hot topic of conversation and a concern for many businesses and managers. The good news is that millennials are like most people, they aim to have a job where they are valued, make an impact and develop their skills, all while being interested in what they do and being fairly paid for their effort. They want a secure job, but they aren't looking to make one job their life's work. This interactive, online course will discuss how millennials are different from other generations when it comes to their views on careers, success and professional growth. You'll learn coaching and managing tips to help make sure recognition is fair and consistent. You'll also learn how to leverage modern technology to increase engagement, and how to make work challenging, engaging, and fun.	0.5	Fundamental
<b>Managing a Work Group</b>	Managing a Work Group is a course designed to familiarize participants with techniques for building and maintaining a high performance work group. After completing this course, participants should be able to describe how to work with group members to set performance goals, provide reinforcement for good performance, and build employee involvement in group activities. They should also be able to describe considerations associated with effective training, ways to diagnose performance problems, and techniques for practicing assertiveness. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Managing Complaints: 01-The Difficulties of Managing Complaints</b>	Discover the difficulties of managing team member complaints and how to overcome these issues.	1	Intermediate
<b>Managing Complaints: 02-Handling Complaints Using Active Listening</b>	Use active listening skills to effectively handle team member complaints.	1	Intermediate
<b>Managing Complaints: 03-Your Path to Managing Complaints</b>	Learn and apply the five-step process for effectively handling complaints from your team members.	1	Intermediate
<b>Managing Complaints: 04-Mastering Managing Complaints</b>	Practice Managing Complaints in a full scenario situation.	1	Intermediate
<b>Managing Complaints: 05-Managing Complaints Health Check</b>	Test your ability to apply Managing Complaints concepts in this skills-based scenario assessment.	1	Intermediate

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Title	Description	Hours	Level
<b>Managing Contractors and Temporary Employees</b>	In LearnSmart's Managing Contractors and Temporary Employees Video Training, you'll learn how contractors and temps -- a common part of today's business landscape -- offer managers a variety of unique solutions, but also an assortment of unique challenges and questions. Knowing how to incorporate these dedicated professionals into your strategic plan can go a long way toward maximizing their effectiveness, and that of your department.	3.25	Intermediate
<b>Managing Generation X</b>	You have probably heard the term Generation X used in many different arenas. Who are they? What are their characteristics? What impact are they having on the workforce? Understanding the needs of Generation X employees is essential to effectively motivating and communicating with this important workforce. This 1-hour interactive online course examines the different characteristics of Generation X relative to other generations present in the workplace and offers effective strategies to bring out the best in this vital group of workers.	1	Intermediate
<b>Managing Stress at Work</b>	Eu-stress and Di-stress. One positive, one negative. One can push us to new levels of achievement, the other can kill. In this course, learn the difference between positive and negative stress, and how to manage both to help you achieve the results you desire. Reduce the negative stress in your world by using application exercises and a rich multimedia process. Check process to identify pain points and take action to regulate the stress you experience.	0.5	Intermediate
<b>Managing Technical Professionals</b>	In LearnSmart's Managing Technical Professionals video training, managers are given a thorough overview of how to effectively lead technical professionals. You will cover material on the high-tech business environment to how to establish and maintain credibility. You will find discussions on how to keep technical professionals motivated. And how, when inspired, these dedicated individuals will help support a company's strategic objectives. But to do this, they need assistance from managers in identifying their career goals. Overall, you'll learn how to assist your organization and the technical professionals you manage in reaching and exceeding their goals.	2.75	Intermediate
<b>Managing Up: Strengthening Business Relationships</b>	Have a great rapport with your employees and your peers? You're not done yet! Learning how to manage up is a key component of any successful career. Through application exercises and a rich multimedia process, this course will teach you what you need to know to create positive relationships with those you report to.	0.5	Intermediate
<b>Managing Yourself</b>	Managing Yourself is a course designed to familiarize participants with techniques for making a smooth transition from worker to supervisor and with some tools that can make a supervisor's job easier. After completing this course, participants should be able to describe techniques for starting off on the right foot as a new supervisor. They should also be able to describe how to use tools such as delegation and time management. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Mastering Access 2016, Basics</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will walk you through building your first Microsoft Access database, including creating tables, using queries, and implementing forms and reports.	3	Fundamental
<b>Mastering Access 2016, Intermediate</b>	Everything You Need To Know About Microsoft Access -- Delivered In Easily Searchable, Highly Informative Video Modules Microsoft Access lets ordinary users develop powerful apps customized for their business needs. In this course experienced Microsoft Access trainer Kathy Jones will build upon the basics of tables, queries, forms, and reports covered in the Basics course. Starting with the basics of relational database design, this course will expand your knowledge of Microsoft Access by covering topics such as table relationships, query joins, sub-datasheets, field validation, parameter queries, and more.	2.75	Fundamental
<b>Mastering Excel 2016</b>	The World Is Filled With Two Kinds Of People: A Handful Of People Who Are Masters Of Excel, And The Millions Of Others Who Wish They Were. If you've mastered Microsoft Excel 2016 then you have one of the most practical and valuable skill sets in all of modern business. A spreadsheet guru can work wonders - from organizing lists, to creating multi-layered, interactive reports, to revealing answers to business-critical questions like ROI, budget allocations, tracking expenditures, and more. This course covers everything you need to know about Microsoft Excel 2016, from the very basics to the most advanced features and functions. Note: This course covers all the objectives required in the Microsoft Office Specialist exam 77-727. This course includes all of the modules from the Basics and Intermediate courses, as well as 26 additional, more advanced, training modules.	11.5	Advanced
<b>Mastering Excel 2019 - Advanced</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to use links, Lookup functions, Data Validation, Macros, data tables, and more.	4.3	Fundamental
<b>Mastering Excel 2019 - Basics</b>	There are two kinds of people: Those who are masters at Excel, and those who wish they were When you master Excel, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course is your first step towards becoming an expert at using Excel 2019.	4.5	Fundamental
<b>Mastering Excel 2019 - Intermediate</b>	There are two kinds of people: Those who are masters at Excel 2019 or Excel 365, and those who wish they were. When you master Excel 2019 or Excel 365, you have one of the most practical and valuable skillsets in modern business. A spreadsheet guru can work wonders—from organizing lists; to creating multi-layered, interactive reports; to answering critical business questions like ROI, budget allocations, expense tracking, and more. This course builds on your existing Excel knowledge and teaches you how to manage data, charts, and tables, and how to use powerful tools such as Pivot Tables, Pivot Charts, Slicers, Timelines, and more. This is our most requested training course! If you learn to use Excel 2019 or Excel 365, you will start to see how useful it is in your life—from formatting your grocery list to calculating complex ROI values. If you are comfortable with the basics of Excel, let our Microsoft Certified Trainer, Kathy Jones, walk you through more advanced topics that will take your spreadsheets to the next level and help you to be more efficient in analyzing your data. Topics covered include: Working with named ranges Inserting functions Using advanced sorting and filtering techniques Inserting Tables Applying advanced Conditional Formatting Inserting charts and graphics Applying advanced charting tools Working with Pivot Tables, Pivot Charts, Slicers, and Timelines	5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Mastering Google Drive (2020)</b>	Learn to collaborate, store, share, and access your files any time from any device. It's time to leave attachments behind. Google Drive is an accessible, secure, and free tool for collaborating, sharing, editing, and storing your files in the cloud. If you have a Google account, you already have a Google Drive! In this course, Google expert Laurie Sherrod shows you how to make the most of your Google Drive including all the tips and tricks that will make it easy and fast to get started. It's already integrated with other Google Apps like Gmail, Google Docs, and Google Sheets. By the end of this course, you will understand the purpose and features of Google Drive and be ready to use the application to store, edit, and share files and folders any time and from any device.	1.25	Fundamental
<b>Mastering Microsoft Project 2016 – Part 1</b>	In this course PMP and Certified Technical Trainer Christina Tankersley will familiarize you with the basic features and functions of Microsoft Project Professional 2016 so you can use it effectively and efficiently in your real-world environment. This course covers the critical knowledge and skills a project manager needs to create a project plan with Project 2016 during the planning phase of a project. In other words, if your manager assigns you to lead a project, this course will enable you to draft a project plan with Project 2016 and share it with your supervisor (and others) for review and approval.	2.25	Intermediate
<b>Mastering Microsoft Project 2016 – Part 2</b>	In this course, PMP and Certified Technical Trainer Christina Tankersley will demonstrate how to use the features and functions of Microsoft Project Professional 2016 to effectively manage your project plans. This course covers the skills a project manager needs in order to manage a project plan created with Microsoft Project 2016. From updated task progress, work, and costs to creating reports, and including advanced topics such as sharing resources and linking project plans, this course covers everything you need to know in order to manage your projects using Microsoft Project.	2.25	Intermediate
<b>Mastering Microsoft Teams (2019)</b>	Conversations, Channels, and Chatbots: Learn How To Get The Most from Microsofts New Communications Hub - Teams. The ability for teams to work together productively is perhaps the most important function in any business, and its the central focus of the new Microsoft Teams application. From file sharing and co-editing to video calls, persistent chat, screen sharing, and more, learn how Microsoft Teams gives you the tools to stay in touch and get work done with your colleagues and partners. Updated for 2019, this course includes new and updated material, including Shifts, Whiteboard, Praise, and Calls. We also discuss best practices for getting the most from your Microsoft Teams	5	Fundamental
<b>Mastering Office 365 (2018)</b>	Learn To Organize And Maintain Your Virtual Office Using Microsoft 365: The Powerful, Everything-You-Need-In-One-Easy-Bundle. Online Suite. Office 365 is far more than classic Microsoft Office. Easy, collaborative tools like OneDrive, Teams, Planner, and Forms combine with traditional Microsoft apps to form a powerful productivity-boosting tool - and in this course we'll show you how to tap into all the power Office 365 has to offer! Updated for 2018 with all-new modules covering Microsoft Teams, Forms, To-Do, Stream, and Delve, with updates for Outlook online, navigation, Planner, and more - over 20 new and updated video lessons!	11	Intermediate
<b>Mastering OneNote 2016</b>	Organize Your Work & Life Into Pages, Sections, and Notebooks! OneNote is a powerful tool both for managing your own notes or idea, and for collaborating with others. In this course trainer Kathy Jones will walk you through everything you need to know to be efficient with Microsofts incredibly popular note-taking platform.	2.5	Intermediate
<b>Mastering Outlook 2016</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	6.25	Intermediate
<b>Mastering Outlook 2016 Advanced</b>	From Time-Waster to Productivity Booster: Change the Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time - if the Outlook user just knew how to use the proper tools. This Course Teaches How To Make The Leap From Being A Mere User To Being An Outlook Master.	3	Advanced
<b>Mastering Outlook 2016 Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Is The First Step In Becoming An Outlook Master!	3.25	Fundamental
<b>Mastering Outlook 2019 - Advanced</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be either managed automatically or handled in a fraction of the time if the Outlook user just knew how to use the proper tools. This Course Teaches You to Make the Leap from Outlook User to Outlook Master!	2	Advanced
<b>Mastering Outlook 2019 - Basics</b>	From Time-Waster To Productivity Booster: Change The Way You Use Microsoft Outlook. Few things have greater impact on your productivity than the way you employ Outlook. Too many people waste time on unnecessary tasks that could be managed automatically or handled in a fraction of the time if the Outlook user knew how to use the proper tools. This Course is the First Step to Becoming an Outlook Master!	2.25	Fundamental
<b>Mastering PowerPoint 2016</b>	Making PowerPoint 2016 Easy & Effective . Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	8.25	Intermediate
<b>Mastering PowerPoint 2016 Advanced</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	3.5	Advanced
<b>Mastering PowerPoint 2016 Basics</b>	Making PowerPoint 2016 Easy & Effective. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made - not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	4.75	Intermediate
<b>Mastering PowerPoint 2019 - Advanced</b>	Learn advanced features to get the most out of PowerPoint 2019 or PowerPoint 365. Have you seen someone deliver a PowerPoint presentation that was really well done? Do you remember the difference it made—not only in helping you understand the content, but the way it made you feel about the presenter? This course will show you how to turn lackluster presentations into something that is visually stimulating and works to keep your audience engaged.	5	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Mastering PowerPoint 2019 - Basics</b>	Making PowerPoint 2019 Easy & Effective . Using PowerPoint effectively is a crucial skill for any business professional. Whether it's designing a presentation for a meeting, creating a handout, or even creating and exporting a custom video, PowerPoint 2019 is a tool that everyone should feel comfortable using. In this Bigger Brains course, our PowerPoint guru Kelly Vandever walks you through the basics of getting started with PowerPoint 2019.	4.75	Fundamental
<b>Mastering QuickBooks Desktop 2018</b>	Learn The Useful And Powerful Features And Tools In QuickBooks Pro, Premier, and Enterprise. Do you feel like you don't have time to learn how to use some advanced tools and functions in QuickBooks because you have other important work to do - like gathering or inputting data into QuickBooks? This course is a great way to get up to speed on QuickBooks 2018, with many time-saving lessons that can change the way you think about QuickBooks.	3	Intermediate
<b>Mastering QuickBooks Online 2018</b>	Become A QuickBooks Online Guru. QuickBooks Online brings traditional QuickBooks accounting to a cloud-based solution, and this course will show you everything you need to know to manage your customers, vendors, invoices, bills, checks, and online payments through QuickBooks Online.	4.25	Intermediate
<b>Mastering Word 2016</b>	Learn Everything You Need to Know About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word, from the very basics to the most advanced features.	9.75	Advanced
<b>Mastering Word 2016 Advanced</b>	Learn More About Microsoft Word 2016 -- Delivered in Easily Searchable, Highly Informative Content Modules Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley well show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Advanced
<b>Mastering Word 2016, Basics</b>	Learn The Basics Of Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley, we'll show you everything you need to know to start harnessing the power of Microsoft Word.	3.6	Fundamental
<b>Mastering Word 2016, Intermediate</b>	Learn More About Microsoft Word 2016 -- Delivered In Easily Searchable, Highly Informative Content Modules. Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer Christina Tankersley we'll show you everything you need to know to start harnessing the power of Microsoft Word.	2.5	Intermediate
<b>Mastering Word 2019 - Advanced</b>	Learn the powerful advanced skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on intermediate skills in Word 2019 or Word 365 to create more professional and effective documents.	2.5	Fundamental
<b>Mastering Word 2019 - Basics</b>	Learn the Basics of Microsoft Word 2019Delivered in Easily Searchable, Highly Informative Content Lessons Microsoft Word: Hands-down the most powerful document creation tool on the planet. Used by millions of people each day, very few know how to use it properly. In this basics course produced by Microsoft Certified Trainer, Barbara, Evers, well show you everything you need to know to start harnessing the power of Microsoft Word.	3.5	Fundamental
<b>Mastering Word 2019 - Intermediate</b>	Learn intermediate skills of Microsoft Word 2019 or Word 365—delivered in easily searchable, highly informative content lessons. Microsoft Word is hands-down the most powerful document creation tool on the planet. While used by millions of people each day, there are very few who know how to use Microsoft Word properly. In this comprehensive course produced by Microsoft Certified Trainer, Barbara Evers, we'll help you build on basic skills in Word 2019 or Word 365 to create more professional and effective documents. Topics covered include: Working with tables and charts including performing calculations and linking to data in an Excel workbook Creating text styles, list styles, and table styles Applying document themes Inserting building blocks (Quick Parts) Using and creating templates Inserting section breaks, columns, and linked text boxes Creating an index Creating a table of contents Creating a table of figures Creating an outline Creating a master document Creating a mail merge	2.75	Intermediate
<b>Material Handling: Tank Trucks</b>	This course is designed to familiarize participants with basic concepts of material handling using tank trucks. After completing this course, participants should be able to describe characteristics of liquids that can affect liquid handling operations, and they should be able to describe precautions, procedures, and equipment associated with handling hazardous liquids. They should also be able to describe features of a typical tank truck and typical procedures for loading and unloading a tank truck. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Material Science: Properties of Metals</b>	This 2-hour interactive online course is designed to assist nuclear facility operating contractors in providing operators, maintenance personnel, and technical staff with the necessary fundamentals training to ensure a basic understanding of the properties of metals. Since almost all processes that take place in a nuclear facility involve the use of specialized metals, a basic knowledge of material science is important because it enables contractor personnel to understand why a material was selected for a certain application within their facility. This knowledge will help personnel more fully understand the impact that their actions may have on the safe and reliable operation of facility components and systems.	2	Fundamental
<b>Material Science: Structures of Metals</b>	This 1-hour online interactive course is designed to assist nuclear facility operating contractors in providing operators, maintenance personnel, and technical staff with the necessary fundamentals training to ensure a basic understanding of the structure and properties of metals. Since almost all processes that take place in a nuclear facility involve the use of specialized metals, a basic knowledge of material science is important because it enables contractor personnel to understand why a material was selected for a certain application within their facility. This knowledge will help personnel more fully understand the impact that their actions may have on the safe and reliable operation of facility components and systems.	1	Fundamental
<b>Math: Basics</b>	This course is designed to familiarize participants with basic mathematical applications that can be used on the job. After completing this course, participants should be able to interpret measurements that include fractions and decimal values, measurements in English and metric units, and perform mathematical applications involving fractions and decimals. They should also be able to calculate dimensions associated with rectangles, triangles, and circles.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
Measurement - Temperature, Force, and Fluid Properties	Monitoring and measurement are an essential part of almost every job. Proper measurement of physical properties requires the knowledge of specific terms, measuring units, and measuring devices. This course covers the terminology needed to accurately monitor and measure equipment, as well as the measuring units and techniques that apply to temperature, force, and fluids. It also discusses the challenges associated with measuring different physical properties.	0.5	Intermediate
Mechanical Maintenance: Couplings	This interactive online course addresses how different couplings attach to shafts. You will learn factors that can increase wear and the lifespan of a coupling, and the applications of different coupling types. This course is part of a series of courses on basic mechanical maintenance. Additional courses in this series include: Mechanical Maintenance: Basic Terms of Maintenance Mechanical Maintenance: Maintaining and Troubleshooting Gear Reducers Mechanical Maintenance: Maintaining V-Belts Mechanical Maintenance: Maintaining Flexible Drives: Roller Chain and Silent Chain Mechanical Maintenance: Maintaining Flexible Drives: Flat Belts, V-Belts, and Timing Belts Mechanical Maintenance: Couplings Mechanical Maintenance: Maintaining and Troubleshooting Brakes and Clutches	0.5	Intermediate
Mechanical Power Press Safety	A mechanical power press (MPP) is a machine that uses dies and pressure to shear, punch, form, and assemble metal or other material. They can develop up to several thousand tons of pressure, and the area where they perform work - the point of operation - poses a serious pinch point hazard. They also contain rotating component and in-running nip point hazards. The primary and secondary safeguards that are used on MPPs depend on several things. All safeguards must be inspected and tested on a regular basis to make sure that they function correctly and meet all current safety standards.	0.5	Intermediate
Mechanical Seals	The purpose of this course is to provide participants with a general understanding of mechanical seals and mechanical seal installation. At the completion of this course, participants will be able to describe the components and operation of the different types of mechanical seals as well as procedures for seal removal and installation.	1	Intermediate
Meetings That Get Results	Frustrated with boring meetings that waste time? Never fear! This pivotal course will teach you how to shift from boring, ineffective meetings, to strategic meetings that get results! Through application exercises and a rich multimedia process, learn the specific components that make meetings worth the time and effort of everyone involved. But what if you are not in charge? Not a problem! This course will also take you through the steps and options to make meetings effective even when you are not the one conducting!	0.5	Intermediate
Membrane Filtration - Part 1: Process, Products & Materials	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This 1-hour online course is the first of several courses on the subject of membrane filtration. The course covers an introduction to the subject, including membrane processes, products, materials and limitations. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
Membrane Filtration - Part 2: System Components & Pumps	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This 1-hour interactive online course is the second of several courses on the subject of membrane filtration. The course covers system components, including heat exchangers, valves, pressure gauges, flowmeters, tanks and pipes. It also covers pump types and pump selection because without a pump, there is no membrane filtration system. This course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
Membrane Filtration - Part 3: Plant Functions and Pretreatment Methods	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high-purity water. This course is the third of several courses on the subject of membrane filtration. This 1-hour interactive online course covers single-pass and multi-stage plant design; plant functions including start, stop and flush; and pretreatment methods and strategies. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
Membrane Filtration - Part 4: Cleaning, Measuring, Controls and Pumps	It has taken 35 years to develop sufficiently good and inexpensive membranes to treat a variety of liquids, including waste water. However, there is still a long way to go before it is generally known how to engineer and operate membrane plants. Membrane filters are used in the dairy industry, the pulp and paper industry and for high purity water. This course is the fourth in a series of several courses on the subject of membrane filtration. The 1-hour online course covers water supply and drains, chemicals for cleaning, sterilization, measuring devices, common control loops and control of pumps. The course is based on a handbook prepared by one of the leading suppliers of membrane filtration equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
Metal on Metal Safety	When working on heavy construction equipment, there are often situations when you have the need to strike a metal component of a machine with a hammer. Most hammers have hardened steel heads, and there is a hidden danger in striking two hardened metal surfaces together. This action can lead to sharp pieces of metal breaking out of the hammer or the struck piece of metal at very high velocity. This course will describe why this happens and what can be done to minimize the danger and protect yourself from injury.	0.25	Intermediate
Metalworking Fluid Safety	Metalworking fluids, or MWFs, are used for cooling and lubrication during metal machining operations. When not properly handled, metalworking fluids can cause various health concerns. This course will provide you with the tools to protect yourself when working with metalworking fluids.	0.6	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Metes &amp; Bounds Surveys: An Essential Review</b>	This course reviews the definition of metes and bounds land descriptions, looks at the origin of metes and bounds and discusses known problems with this ancient method of describing land for the purpose of conveyance. It defines where metes and bounds is still practiced in North America. The course compares Public Land Survey System (PLSS) surveys to metes and bounds surveys. It discusses the principles and applications of junior-senior rights as encountered in metes and bounds states. The course also looks at so-called quasi metes and bounds descriptions. The emphasis of this course is on gaining a thorough understanding of metes and bounds—an often poorly understood concept—and its proper application. Pitfalls and liability are discussed, along with strategies to avoid the temptation to rely too heavily on the literal use of bearings and distances in metes and bounds descriptions.	1	Fundamental
<b>Microgrid Essentials</b>	Microgrids aim to reduce costs and increase reliability for the users. They may be the latest buzzword in energy efficiency discussions, but understanding them and where they can be implemented can be daunting. This course aims to enlighten those who own, operate, and benefit from microgrids as well as complexities and challenges.	1	Fundamental
<b>Microgrids and the City</b>	Is your municipality prepared for a loss of power for days, or even weeks? The use of backup generators is really a short-term solution that only addresses one aspect of loss of power - what about the rest? Wireless communications? Clean water? Gasoline/diesel? Medicines? A holistic approach to energy from up front and ongoing efficiency, minimizing demand, and designing, building, and operating long-term outage solutions is within the grasp of all municipalities. This presentation will examine energy resiliency resources and provide two case-study examples of the application of those resources.	1	Intermediate
<b>Microsoft 365 Admin Tips and Tricks</b>	Learn the secrets to keep your Microsoft 365 tenant safe and secure. As an administrator, you know the importance of streamlining user, device, and configuration management, while ensuring a safe and secure experience for both your users and your company. In this course, Amy Babinchak, Microsoft 365 MVP, shows you how she administers and secures Microsoft 365 tenants for her company and her clients. Learn how to access the various Microsoft 365 admin centers and where to perform necessary tasks, while also getting tips and tricks from Amy based on her years of experience. By the end of this course, you'll be ready to get started with, or improve, your Microsoft 365 administration.	2	Fundamental
<b>Microsoft Forms Essentials</b>	Learn How Microsoft Forms Makes It Easy to Collect Data via Forms or Quizzes Easily create online forms, surveys, and quizzes, and view the results as they come in with Microsoft Forms! In this course we'll take a close look at all the features and benefits of this new Office 365 tool!	1.33	Fundamental
<b>Microsoft Lync Essentials</b>	Can You Hear Me Now? The Essential Guide To Communication & Collaboration With Microsoft Lync Collaboration is the art of making 1 + 1 equal more than 2 - coworkers sharing ideas, working through challenges, and congratulating each other on successes is an important part of any successful business. How do you do that with today's distributed workforce? Microsoft Lync to the rescue! This Course Will Teach You Everything You Need To Know To Chat, Call, Present, and Share With Microsoft Lync.	1.25	Fundamental
<b>Microsoft Project 2013 Essentials Training</b>	Microsoft Project 2013 is a desktop application used primarily by Project Managers to create and manage large or complex programs or projects. The objective of Microsoft Project is to manage your project easier. In this Essentials training course, you will be introduced to the user interface. You will learn how to create, execute, and close projects. This course will show you how to plan and create tasks as well as how to create resources and assign them to those tasks. This interactive online course wraps up with tips and tricks you can use to make Microsoft Project more efficient for you.	2	Intermediate
<b>Microsoft Project 2013 Intermediate Training</b>		2	Intermediate
<b>Microsoft Sway Essentials</b>	Learn The Easy Way To Create Compelling, Modern Presentations With Microsoft Sway, For everyone who ever struggled to create an engaging presentation with PowerPoint, rejoice! Microsoft Sway is a unique and refreshing new way to create visually appealing, interactive presentations, and this course will walk you through getting started with your first Sway.	1.25	Fundamental
<b>Microsoft Teams Essentials</b>	Learn To Collaborate and Communicate with Microsoft Teams Many businesses are using Microsoft Teams to facilitate communication, collaboration, file sharing, and more. This mini-course covers everything you need to know in order to start using Microsoft Teams in just the first two modules (20 minutes).	1	Fundamental
<b>Microsoft To Do Essentials</b>	Organize Your Day Track Your To-Dos and Focus on What's Important The new Microsoft To-Do app is a simple tool with big benefits. Accessible from your phone, tablet, desktop app or browser, To-Do lets you organize all your tasks into multiple To-Do lists, and use the My Day feature to focus your attention on the most important tasks.	0.5	Fundamental
<b>Minimum Standards and Practices for Florida Mold Assessors and Remediators</b>	This two-hour recorded presentation is an overview of the Minimum Standards and Practices for Mold Assessors and Mold Remediators as specified in the State of Florida's Rules 61-31.701 and 61-31.702, regulations for Mold Related Services. This course is not limited to mold inspectors and mold remediators. Others that will find this course useful include property owners performing their own mold inspections/mold removal, architects, general contractors and other professionals that find themselves involved in a mold assessment or mold remediation project as part of their normal scope of work, even though they are not holding themselves out for hire as a mold assessor or mold remediator. Due to the amount of material in Florida's Standards and Practices Rule to be covered in this course, this course assumes you have some basic knowledge of the material.	2	Fundamental
<b>Minimum Technical Standards for Georgia Land Surveyors</b>	This 1-hour interactive online course reviews technical standards for property surveys set by the Georgia State Board of Registration for Professional Engineers and Land Surveyors. The technical standards were established to assure the public that proper and adequate surveys, maps, plats and writings are executed in connection with property. This course covers standards involving land titles and location, horizontal and vertical measurements, monuments, coordinates and triangulation, maps and plats, and violation. This course includes a multiple choice quiz at the end. This course includes a multiple-choice quiz to test your understanding of the material. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced

## AEC Complete

Title	Description	Hours	Level
<b>Minimum Technical Standards for Louisiana Land Surveyors (2 hours)</b>	This 2-hour online course reviews the Louisiana Professional Engineering and Land Surveying Board's Minimum Standards for Property Boundary Surveys. The standards were adopted to ensure that surveys are performed in accordance with acceptable procedures. This course covers working definitions, as well as standards concerning classification of surveys, monuments, research and investigation, field procedures, and plats and maps. This course also covers minimum standard detail requirements for ALTA/ACSM land title surveys. This course includes a test at the end of each section. This course is also available in a 4 hour version on RedVector.com. The 4-hour version covers much of the same information and should not be taken in addition to this 2 hour course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Minimum Technical Standards for Louisiana Land Surveyors (4 hours)</b>	This 4-hour online course reviews the Louisiana Professional Engineering and Land Surveying Board's Minimum Standards for Property Boundary Surveys. The standards were adopted to ensure that surveys are performed in accordance with acceptable procedures. This course covers working definitions, as well as standards concerning classification of surveys, monuments, research and investigation, field procedures, and plats and maps. This course also covers minimum standard detail requirements for ALTA/ACSM land title surveys. This course includes a test at the end of each section. This course is also available in a 2 hour version on RedVector.com. The 2-hour version covers much of the same information and should not be taken in addition to this 4 hour course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Advanced
<b>Mississippi Standards of Practice for Surveying</b>	The Minimum Standards of Land Surveying applied to all survey plats performed in Mississippi from 1991 to June 30, 2005 (Rule 21). On July 1, 2005, new standards became effective, the Standards of Practice (revised Rule 21). A third revision of Rule 21 became effective on August 1, 2015 and required a new checklist. A fourth revision of Rule 21 became effective on April 15, 2017, however the changes were minor and did not require any update to the checklist.	1	Fundamental
<b>Mobile Elevating Work Platform (MEWP) Safety</b>	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for MEWP operators and occupants. It covers MEWP Group and Type designations, as well as MEWP design, use, and training requirements.	0.75	Intermediate
<b>Mobile Elevating Work Platform (MEWP) Safety for Supervisors</b>	Mobile Elevating Work Platforms (MEWPs) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. Due to the potential hazards of working at height, the American National Standards Institute (ANSI) and Canadian Standards Association (CSA) have developed standards related to MEWP design, construction, and use. This course covers the 2018 ANSI A92 and CSA B354 standards for supervisors of MEWP operators. It covers the latest MEWP Group and Type designations, and updated design, use, and training requirements.	1	Intermediate
<b>Modern Environmental Laws</b>	There are a series of federal laws and Executive Orders since 2005 that have reinforced the federal government's commitment to energy conservation and environmental sustainability, including the Energy Policy Act of 2005 (EPAct) Executive Order 13423, Energy Independence and Security Act of 2007 (EISA), and Executive Order 13514. This webcast will discuss the mandates outlined in these federal laws and executive orders that require NetZero energy for all new federal construction and alterations by 2030 and a reduction of water consumption of 20% by FY 2020. The course also includes new greenhouse gas (GHG) emissions management requirements, expanded water reduction requirements for federal agencies, and address waste diversion, local planning, sustainable buildings, environmental management, and electronics stewardship.	3	Fundamental
<b>Modern React with Redux</b>	This is the tutorial you've been looking for to master modern web development with React. Redux? We got it. ES6/ Babel? Covered. Webpack? Included! Mastering React and Redux can get you a position in web development or help you build that personal project you've been dreaming of. It's a skill that will put you more in demand in the modern web development industry, especially with the release of Redux and ReactNative. This course will get you up and running quickly, and teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux. We'll start by mastering the fundamentals of React, including JSX, props, state, and eventing. Source code is provided for each lecture, so you will always stay up-to-date with the course pacing. After an introduction to React, we'll dive right into Redux, covering topics like reducers, actions, and the state tree. If you are new to React and Redux, or if you've been working to learn it but sometimes feel like you still don't quite 'get it', this is the React course for you! To learn React you have to understand it. Learn how to use React's custom markup language, JSX, to clean up your Javascript code. Master the process of breaking down a complex component into many smaller, interchangeable components. Grasp the difference between props and state and when to use each. Develop complex applications that scale in complexity by mastering Redux. Dive deeper into Redux by using middlewares. No fancy terms required! I've built the course that I would have wanted to take when I was learning React and Redux. A course that explains the concepts and how they're implemented in the best order for you to learn and deeply understand them.	10.5	Intermediate
<b>Modern Shale Gas Development</b>	The course provides an overview of modern shale gas development, as well as a summary of federal, state, and local regulations applicable to the natural gas production industry, and describes environmental considerations related to shale gas development. It describes the importance of shale gas in meeting the future energy needs of the United States including its role in alternative energy strategies and reducing greenhouse gas (GHG) emissions. The course is intended to serve as a technical summary document, including geologic information on the shale gas basins in the U.S. and the methods of shale gas development. By providing an overview of the regulatory framework and the environmental considerations associated with shale gas development, it will also help facilitate the minimization and mitigation of adverse environmental impacts. By so doing, the course can serve as an instrument to facilitate informed public discussions.	3	Intermediate
<b>Mold Awareness and Prevention</b>	Mold is everywhere! Thousands of species of this type of fungus can be found growing year round, both indoors and outdoors, even in the most sterile of environments. Mold has a number of benefits, however it can also become a problem. Mold can destroy construction materials and also negatively impact peoples health. Knowing how to recognize mold, as well as how to clean it up and prevent it from recurring, is essential to a safe and healthy environment at work and at home.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Mold Basics</b>	Mold can grow on virtually any organic material as long as moisture and oxygen are present. There are molds that grow on wood, paper, carpet, food, and insulation. Because mold eats or digests what it is growing on, it can damage a building and its furnishings. If left unchecked, mold eventually can cause structural damage to building materials. This course provides an overview of mold. This course also contains research on mold and provides an overview on some of the potential health effects related to mold exposure.	1	Fundamental
<b>Mold Contractors' Standard of Care</b>	In the absence of a common regulation, the mold remediation industry is expected to follow the Standard of Care. Who defines what that is? Where can it be found? Who is the enforcer? This course answers those questions, making clear how each contractor can live up to those expectations with each project while reducing their risk of legal exposure.	1	Fundamental
<b>Mold Documentation and Report Preparation</b>	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
<b>Mold Remediation</b>	Buildings inevitably get wet, both inside and out, and they must be allowed to dry or mold will grow in them. This course provides an overview of mold remediation. We will review guidelines on cleaning and remediation methods for clean water damage. We will also cover some possible situations and useful methods or techniques for remediation.	1	Fundamental
<b>Mold Remediation Equipment</b>	The key to efficiently and effectively completing remediation projects is knowing what equipment to use for the task, how to use it, and take care of it. This course will allow you to quickly learn from our practical experience and broad exposure to select the equipment, power tools, hand tools, and supplies that best fit your team and project list.	1	Fundamental
<b>Mold Reporting for Mold Assessment and Mold Remediation Projects</b>	This course was developed to help assessors and remediators who are trying to comply with requirements in Florida's new law and regulation, specifically rule 61-31.701. Minimum Standards and Practices for Mold Assessors, and Florida's rule 61-31.702. Minimum Standards and Practices for Mold Remediators. These rules require that certain reports are to be written by mold assessors and mold remediators over the course of the assessment and remediation. While the rule specifies certain information that must be in these reports, the rule does not specify the format, or give you examples on how to write these reports. This course was created to fill that gap.	3	Fundamental
<b>Mold Safety and Health</b>	Workplace safety and health for the remediation contractor is much more than just another policy. It's about people and profit. This course will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	1	Fundamental
<b>Mold Sampling</b>	This course on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. A combination of both science and art in the field and lab, you will learn how to sort through those sampling and analysis options and confidently describe why they are the best alternatives for each project.	1	Fundamental
<b>Montana 4 Hour 2017 NEC Changes: Program 1</b>	This 4-hour program is formatted in 3 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) 2017 NEC Changes: General Requirements (RV-11105) 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Lesson 1: The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: The second lesson covers Chapter 1 of the 2017 National Electrical Code (NEC) and contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Lesson 3: In the last lesson chapter 2 is discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial	4	Intermediate
<b>Montana 4 Hour 2017 NEC Changes: Program 2</b>	This 4-hour program is presented in 4 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) 2017 NEC Changes: Enclosures and Boxes (RV-11108) 2017 NEC Changes: Hazardous Locations (RV-11112) 2017 NEC Changes: Special Occupancies (RV-11113) Lesson 1: The first lesson covers Article 240 and 250 of the National Electrical Code (NEC) and the requirements for overcurrent protection and for grounding and bonding. Changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: Chapter 3 of the NEC contains requirements for wiring methods, enclosures and boxes. Notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Lesson 3: Chapter 5 of the 2017 National Electrical Code (NEC) also contains requirements for special occupancies. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements	4	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Montana Electrician 4 Hour Industry Related Program 1</b>	This 4-hour program is presented in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) We come to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll	4	Intermediate
<b>More Than Mold - Health Effects Associated With Mold and Water Damage</b>	Mold is probably one of the most common pollutants responsible for building-related illnesses. It's certainly the one with the highest profile. This course is designed to teach you everything practical you might need to know about what is required for mold to grow, how mold spreads, and how mold might affect the health of occupants in a building and the workers that clean mold up. This course will debunk some myths about toxic mold and tell you some things about mold you may not have heard before. It's more than mold. As you will understand after taking this course, health symptoms associated with mold exposure are often due to a complex and poorly understood mixture of agents other than or in addition to mold. This course goes into detail regarding the types of mold that grow indoors and the allergens, irritants and mycotoxins associated with mold growth. This course covers other things to be aware of when trying to develop an exposure assessment or remediation protocol regarding mold and the presence of water damage. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health. This course is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health.	3	Fundamental
<b>Motivating Employees</b>	How do you get your employees and team members motivated and actively engaged? According to the dictionary, you simply provide them with a need, desire, or reason to make a particular choice - or behave in a specific manner. Sounds simple, right? Unfortunately, motivating employees is much more than just offering the right prizes, bonuses, or incentives. To understand motivation, we'll first focus on making sure the foundational needs of your employees are being met, and then, look at what additional needs need to be taken care of to help them thrive. Finally, you'll learn how to assess the motivation level of your employees to better determine what types of programs, incentives, or changes should be put in place to effectively increase motivation within your organization.	0.5	Intermediate
<b>Motivational Ethics</b>	**This course does not provide CEU or PDH credit** A lot of good people find themselves getting fired, or even getting arrested, and have to ask, How did I end up here? You likely didn't wake up today and make a conscious decision to NOT steal a car or rob a bank. However, you already have made thousands of choices, and those choices will have an inevitable impact on your life, and the lives of others. This course shows how to recognize and understand HOW to be trustworthy, reliable, and honest in your professional and personal life. What determines your future has everything to do with the choices you make. Understanding ethics can do more than help you decipher what is right or wrong. If you understand and apply the laws of ethics, then you can consciously make decisions that will inevitably lead you to become very successful.	1.75	Fundamental
<b>Motor Branch Circuit Protection</b>	A motor branch circuit, or motor branch, is a circuit that provides power and protection for a motor. According to the National Electrical Code® (NEC®), a motor branch must have a means to disconnect the entire branch from its power supply and a means to protect the branch components from the potentially damaging effects of excessive current. How a motor branch functions and how the necessary protection is provided are the subjects of this course.	1	Intermediate
<b>Motor Control Circuits and Functions</b>	A small motor can be started by simply plugging it into an electrical receptacle or by using a switch or circuit breaker. A large motor requires a specialized switching unit called a motor starter or motor contactor. Once they are running, there are many other aspects to safe and efficient motor operation. Motor control refers to manual or automatic methods for starting, stopping, controlling speed, reversing, and protecting a motor. These controls are achieved using a variety of circuits, connections and sensors.	0.5	Intermediate
<b>Mounting and Dismounting Heavy Equipment</b>	Accessing the operator's cab on heavy equipment requires more physical activity than sitting down into a car or small truck. Mounting and dismounting often requires the use of access supports such as ladders, steps, and handholds. This course will cover some specific safety guidelines to prevent injuries during the mounting and dismounting of heavy equipment.	0.25	Intermediate
<b>Movement Joints in Brick Masonry</b>	Brick masonry is one of the most durable exterior building materials in use around the world. It is a preferred product in most climate areas, from subtropical to near arctic, and for buildings from simple residences to monumental international architecture. When Mies van der Rohe proclaimed God is in the details, he may very well have been thinking of masonry construction. Masonry's long term success depends on designers and installers understanding the physics of masonry movement and the time-tested methods of accommodating that movement. This need is particularly important in commercial and institutional buildings due to their more rigid structural construction and the size of their walls. This 1-hour online interactive course discusses a number of different causes of brick movement and the methods that can be used to accommodate this movement.	1	Fundamental
<b>Multigeneration Management: 01-Workforce Generations</b>	At no other time in U.S. history has the workforce been as generationally diverse as it is currently, comprising four distinct age demographics across numerous ethnic and racial lines the Silent Generation, Baby Boomers, Generation X, and Generation Next. Workforce Generations will teach you about generational behavior in the workplace and how you can leverage the talents and skills of all four generational workforces to boost the motivation, morale, and job performance of everyone in your organization. Additionally, this course is the first course in the Workforce Generations series dedicated to understanding each generation represented in the workplace.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Multigeneration Management: 02-Leading Silents and Boomers</b>	For todays managers, it is essential to understand the unique needs and work habits of the companies elder statesmen the Silent Generation and baby boomers. In this course, you will look at the characteristics of, historical impacts on, and learning styles of both the Silent Generation and baby boomers. You will learn how best to interact with these generations as a means of developing business relationships, the importance of integrating older generations with other employees, and what the future may hold for these knowledgeable and vital contributors to Americas workforce. You will focus on the generational mix between the Silent Generation and the Baby Boomer Generation, as well as the attributes and attitudes that each generation brings into the workplace. This is the second course of the Workforce Generation series, which contains courses dedicated to understanding each generations different behaviors, attitudes, and priorities.	1.5	Intermediate
<b>Multigeneration Management: 03-Multi-Generational Leadership (GenX and Next)</b>	Now that virtually every business has gone digital, we are even more reliant upon those who grew up with the technology, and can use it to do more better and faster than we ever thought imaginable. In this course, you will see how best to work with Generations X and Next, to establish a workplace environment that is conducive to bringing out the best that they have to offer. In many ways, you have access to tomorrows experts today, and that is an opportunity that should not go to waste. This is course 3 in the Workforce Generations series.	1.25	Intermediate
<b>Multigeneration Management: 04-Cross-Generational Teams</b>	Cross-generational teams, or those made up of members of different generations, have a unique set of benefits and challenges. Ultimately, as the manager, it is up to you to help ensure that team members are able to work together effectively. In Cross-Generational Teams, you will learn that the characteristics of cross-generational teams parallel the attributes and attitudes of their individual team members: the Silents, Baby Boomers, Gen Xers, and Gen Nexters. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the fourth course.	1	Intermediate
<b>Multigeneration Management: 05-Developing Generations</b>	When you understand the basic distinctions of the workforce generations comprising your employed staff, you can begin reaping the benefits by putting that knowledge to good use. It only takes a little conscientious effort to bridge generational gaps before you start experiencing positive results. Developing Generations will show you the benefits of understanding and appreciating the generational mix, as well as the attributes and attitudes that each generation brings into the workplace. In the Workforce Generations series dedicated to understanding each generations different behaviors, attitudes, and priorities; this is the final course.	1	Intermediate
<b>Multistage Centrifugal Pump Maintenance</b>	Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single-stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.	1	Intermediate
<b>Multistage Centrifugal Pumps</b>	A centrifugal pump converts external rotational mechanical energy into kinetic energy within a liquid. In the most common design of the centrifugal pump, a single impeller spins within a case called a volute. There is an economical limit to the pressure increase that can be achieved with a single impeller. Placing multiple impeller-and-volute stages in a case creates a single centrifugal pump unit capable of continuously delivering much higher discharge pressures than can be created by a single stage pump. This type of pump is called a multistage centrifugal pump. This course discusses some of the mechanical considerations and different designs of multistage centrifugal pumps.	0.25	Intermediate
<b>Nanotechnology and Sustainability</b>	Are you ready for your world to change due to the contributions of nanotechnology? You can be confident in your understanding of nanotechnology, its impacts, and its relationship to sustainability. You can reap the benefits for yourself and your clients. This webcast gives you the potential that nanotechnology, specifically nano-products, brings to sustainability. Topics include new energy creation and storage opportunities, improved product durability, water quality improvement, pollution mitigation, as well as benefits and potential dangers of nanotechnology.	1	Intermediate
<b>Natural Gas Systems - Sizing and Design Consideration</b>	What is that yellow pipe for? Do you know how to size a natural gas system? Natural gas piping systems are in use in virtually every commercial building. Natural gas is used for comfort heating, cooking, laundry, water heaters, fireplaces, even decorative lighting and fire pits. The proper design and installation of natural gas systems is essential for not only the efficient operation of appliances but also the safety and health of building occupants. This interactive online course will take an in-depth look at a number of considerations that must be addressed before design can begin including: Knowing the applicable codes,Knowing the requirements of the natural gas utility supplier,Venting requirements,Pipe identification and labeling requirements,Pipe support requirements,Gas meter clearances for windows, air intakes and electrical equipment, Sizing methods to use, andSelection of piping material.	1	Intermediate
<b>NC Electrician 2017 NEC Changes: Appliances, Equipment and Special Equipment</b>	This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	2	Intermediate
<b>NC Electrician 2017 NEC Changes: Conductors, Wiring Methods, Receptacles and Switches</b>	This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
Negativity in the Workplace	In LearnSmart's Negativity in the Workplace Video Training, you'll learn how negativity serves as an enormous obstacle toward a team's success -- and how this feeling manifests itself in your employees' actions and attitudes. As a supervisor, it is up to you to help prevent negativity from spreading. By dealing with it head-on, and not waiting until it becomes a bigger problem, you put yourself in a better position to avoid a potentially devastating outcome.	4	Intermediate
New Employee Safety Orientation	All occupations, even ones that are not typically assigned to dangerous tasks, have certain safety hazards associated with them. For some occupations, the hazards are obvious. For other occupations, however, the hazards may be less apparent. It would be difficult to fully discuss all safety rules and regulations to avoid every danger you could potentially encounter in your job. So, instead, this online interactive course provides a basic overview of safety issues to help improve your safety awareness. These safety issues include safe work habits, which should be part of your daily routine; personal protective equipment, which may be required to maintain your health and safety on the job; hazard communication, which provides vital information about chemicals and other hazards that affect working conditions; and fire safety, which is a critical concern in any workplace.	0.5	Intermediate
NFPA 70E Introduction	NFPA 70E is the Standard for Electrical Safety in the Workplace. It establishes safe practices for protecting workers from two major electrical dangers, electric shock and arc flash. This course provides an introduction to NFPA 70E and summarizes some of its important electrical safety guidelines, including information on safety program components, risk assessment, risk control hierarchy, safety boundaries and some requirements for electrical equipment and devices. It also introduces PPE categories and incident energy analysis methods for determining personal protective equipment requirements.	0.5	Intermediate
NFPA 70E® - 2018 Updates	Have you reviewed the recent changes from NFPA 70E® 2018? Electrical safety is essential for all businesses and industries and there are many companies that need assistance and guidance in keeping their workers safe. This interactive online course will cover the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates. Upon completion, you will walk away with a much better understanding of what can be done to reach electrical compliance.	1	Intermediate
Night Shift Safety	Night shift work can expose workers to a range of hazards, including sleep deprivation, limited visibility, and changing weather conditions. This course discusses what constitutes extended or unusual works shifts and the hazards associated with work pattern changes. The dangers of sleep deprivation, as well as nighttime weather hazards, are also explained along with nighttime work area lighting needs, operating mobile equipment at night, and the best practices for working outside at night.	0.3	Intermediate
Nitrogen Safety Awareness	Nitrogen is used daily in the workplace without incident. However, serious incidents including fatalities can occur when nitrogen is present in a work environment, such as a confined space, and employees enter without awareness of the potential hazard. This course will teach you how to recognize hazards and take corrective action to protect yourself and others.	1	Intermediate
North Carolina 2 Hour 2017 NEC Changes: A New Process and Five New Articles and General Requirements	This 2 hour program is presented in two lessons: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104) The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
North Carolina 2 Hour 2017 NEC Changes: Hazardous Locations and Special Occupancies	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112) Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113) The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
North Carolina 2 Hour 2017 NEC Changes: Overcurrent Protection, Grounding & Bonding, and Enclosure Boxes	This interactive online course is presented in two lessons: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #1	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #2	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
North Carolina Electrician 2020 NEC Changes: 2 Hour Program #3	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
North Carolina Mapping Requirements	In order to safeguard life, health, and property, and to promote the public welfare, the practice of engineering and the practice of land surveying in North Carolina are subject to regulation. This one hour interactive online course covers North Carolina's mapping requirements, also known as NCSG 47-30. This standard relates to the practice of surveying and mapping. A short quiz follows. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
North Carolina: Home Inspector Program	This course is formatted in 2 lessons to meet the North Carolina course requirement. The two lessons include: Lesson 1: Decks, Stairs, Rails for Home Inspectors This lesson we'll cover the design and construction of the decks, stairs, and rails from the home inspector's point of view. Lesson 2: Green Building Technology for Home Inspectors This lesson applies to the application of green building technology for house construction and housing components. It will give you a brief overview of how they work and how they are applied including installation and components.	4	Fundamental
North Carolina: Mold Basics and Health Effects Associated with Mold	This course is formatted in 2 lessons to meet the North Carolina course requirement. The two lessons include: Lesson 1: Mold Basics This lesson provides an overview of mold and provides an overview on some of the potential health effects related to mold exposure. Lesson 2: More Than Mold - Health Effects Associated With Mold and Water Damage This lesson is helpful for anyone in the mold assessment or mold remediation business and for those suffering in sick buildings or buildings affected with mold or water damage that wants to better understand how damp conditions might be effecting their health	4	Fundamental
North Carolina: Mold Sampling, Safety and Health Program	This course is formatted in 2 lessons to meet the North Carolina course requirement. The two lessons include: Lesson 1: Mold Sampling This lesson on environmental sampling for mold examines the reasons for testing, the choices available, and the correct methods to collectively provide meaningful and accurate information to the remediation team. Lesson 2: Mold Safety and Health This lesson will help you understand the unique concerns of this industry and how to turn hassle into habit. From hazard communication and project documentation to practical on-site safety tips, this course will prepare you to lead your team toward a practice of better and safer projects.	2	Fundamental
NPDES Wastewater Discharge Permits	Water is a critical resource that must be protected to supply safe drinking water and support various activities, such as farming, manufacturing, and tourism. The federal Clean Water Act (CWA) protects waters of the United States (WOTUS). This training provides general guidance on what waters are considered WOTUS. With certain exceptions, the CWA prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollution Discharge Elimination System (NPDES) permit. The requirements of this permit are also covered in this training course.	0.5	Intermediate
Occupational Safety Training: Introduction to OSHA	Many of the health and safety programs and procedures in this Health and Safety Guide are derived from federal Occupational Safety and Health Administration (OSHA) regulations. This course provides you with some background information about OSHA and OSHA standards, inspections, citations, and penalties. At the end of this course, you will be able to distinguish between the role of OSHA and the role of the office of Environmental Health and Safety (EHS). Learn more about the role of OSHA in establishing a safe and secure work environment.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Office 365 Groups Essentials</b>	Learn How Office 365s Powerful New Groups Feature Help Your Team Talk, Plan, And Collaborate Microsoft Office has no shortage of ways for groups to work together. From simple spreadsheet sharing to social media tools like Yammer and Delve and collaboration platforms like SharePoint, Microsoft has provided plenty of tools to help people work as a team.	1	Fundamental
<b>Office 365 Planner Essentials</b>	Learn How to use Office 365 Planner to Organize Your Team in a Powerfully Simple Visual Format. The Planner tool in Office 365 is a powerful team management tool, providing features comparable to standalone project management apps but without the high price tag - in fact it's included free with most Office 365 Business plans.	0.75	Fundamental
<b>Office Safety</b>	While we most often associate workplace injuries with construction, mining, manufacturing, and other manual labor jobs, injuries can occur even if you spend most of your workday sitting at a desk. Therefore, recognizing common hazards in an office environment and knowing how to reduce risks is vital to creating a safer workplace. This course discusses the common hazards in an office environment and how to reduce risks in order to help create a safer workplace.	0.25	Intermediate
<b>Ohm's Law</b>	The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that is commonly referred to as Ohm's Law. Ohm's Law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. This course describes Ohm's law; the units in which power is measured; and how to solve for power, voltage, current, and resistance using Ohm's Law.	1	Intermediate
<b>Oil Spill Responses in Facilities</b>	The environment and public health and safety are affected with every oil spill and facilities should work to mitigate their risk with a goal of zero oil discharge. By the end of this course, you will learn about the tools facilities can use to prevent, contain, control and if necessary cleanup after an oil spill.	1	Intermediate
<b>OJT Mentor</b>	On-the-job training programs can be very productive when properly structured. This course provides tips to help make people more effective OJT mentors, including explaining the structure of an OJT team, providing four questions to ask before training begins, stressing the importance of a training plan, giving tips for being a good mentor, explaining how to evaluate the OJT mentor and program, and more.	0.5	Intermediate
<b>OK Roofing Contractor: Introduction to Sustainable Technologies and Roofing Materials - Concrete Tiles</b>	Part 1 will provide an introduction to the fundamentals of sustainable roof technologies including: vegetative roofs, photovoltaic roof applications, cool reflective approaches, recycled or bio-based content roofs, or some combination thereof. Focus of learning includes the benefits and limitations of sustainable roofs and the potential of technological advancements in sustainable roof design. Concrete tile is one of the most durable roofing materials available. Part 2 of this online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail.	4	Intermediate
<b>Oklahoma 6 Hour 2017 NEC Changes Program</b>	This program is intended to familiarize the reader with the major changes contained in the 2017 NEC, and is suitable for electricians, and electrical engineers. The course addresses Code revisions that are listed in the lessons below. NOTE: This course is formatted in 5 lessons with the exam given at the end of each lesson. Each lesson must be passed with a score of 70% or higher before being allowed to proceed to the next lesson. The lessons are listed below. Lesson 1: 2017 NEC Changes A New Process and Five New Articles (RV-11104) The 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes General Requirements (RV-11105) Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. Lesson 3: 2017 NEC Changes: Branch Circuit, Feeder and Services (RV-11106) Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Lesson 4: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107) Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Lesson 5: 2017 NEC Changes: Enclosure Boxes (RV-11108) Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314.	6	Intermediate
<b>OneDrive Essentials (2016)</b>	OneDrive and OneDrive for Business Can Radically Improve Your Productivity Well Show You How! Both OneDrive (the free, personal version) and OneDrive for Business (the corporate version included in most Office 365 plans) have the same mission: To let you easily access your documents and files from any device, anytime, and securely share them with others.	1.5	Fundamental
<b>OneNote for Windows 10 Essentials</b>	The Structure You Need with the Flexibility You Want OneNote is one of Microsofts unsung heroes: a digital notebook that allows you to organize your notes, meeting minutes, project documents, and more all in one place. Its almost like having an old-school, three-subject binder except with unlimited sections and your notebook wont weigh down your bag like it might have in school. Plus, no one will have to copy your notes, because you can share them digitally to collaborate with others. Are you ready to get organized? Note: While many of the features are the same in other versions, this course is specific to the Windows 10 version of Microsoft OneNote.	1.25	Fundamental
<b>Online Marketing 101</b>	This Course Is A Must-Take For Anyone Who Wants To Drive In More Profits With From Your Online Business Generators Youve heard of businesses making it big online, and others not making it at all and the difference is whether or not they can master online marketing techniques.	1.5	Fundamental
<b>Operator Responsibilities: Plant Production and Safety</b>	The primary responsibility of a plant operator is to ensure that a unit functions safely and efficiently. To fulfill that responsibility an operator must be able to perform different types of duties under a variety of operating conditions. In this interactive online course, we'll focus on operator responsibilities related to plant production and we'll examine some safety responsibilities and regulations that apply to various operating conditions. We'll also examine some safety permits and regulations that operators must be familiar with.	0.5	Intermediate
<b>Order Picker Safety</b>	An order picker is a forklift with an operator platform that raises with the forks. This allows operators to pick, or retrieve, individual items instead of entire pallets stored on high shelves. Order pickers are specially designed to operate in narrow aisles, where there is often only a few inches of clearance on either side. There are several obvious hazards associated with working at heights in narrow aisles, including falls, tip-overs, and falling objects. This course discusses how to safely operate order pickers.	0.25	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Oregon 2017 NEC Changes: A New Process and 5 New Articles and General Requirements</b>	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: A New Process and Five New Articles (RV-11104)The National Fire Protection Association (NFPA) used a new process for considering changes to the 2017 National Electrical Code (NEC). The NEC revision process will be briefly discussed. Additionally, the 2017 NEC will have five new articles covering Fixed Resistance and Electrode Industrial Process Heating Equipment, Large-Scale Photovoltaic (PV) Electric Supply Stations, Energy Storage Systems, Stand-Alone Systems, and Direct Current Microgrids. Lesson 2: 2017 NEC Changes: General Requirements (RV-11105)Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed.	2	Intermediate
<b>Oregon 2017 NEC Changes: Hazardous Locations and Special Occupancies</b>	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Hazardous Locations (RV-11112)Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this online interactive course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements Lesson 2: 2017 NEC Changes: Special Occupancies (RV-11113)The National Electrical Code (NEC) standards govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	2	Intermediate
<b>Oregon 2017 NEC Changes:Overcurrent Protection, Grounding &amp; Bonding, and Enclosure Boxes</b>	This interactive online course is presented in two modules: Lesson 1: 2017 NEC Changes: Overcurrent Protection and Grounding & Bonding (RV-11107)Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. Notable changes include the addition of arc energy reduction requirements for fuses, more options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Lesson 2: 2017 NEC Changes: Enclosures and Boxes (RV-11108)Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings	2	Intermediate
<b>Oregon Electrician 2017 NEC Changes: Appliances and Equipment - Special Equipment</b>	This two-part course discusses the 2017 NEC changes regarding appliances and equipment as well as special equipment. Part I 2017 NEC Changes: Appliances and Equipment Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II 2017 NEC Changes: Special Equipment Do you keep up with changes to code? In this interactive online course we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations.	2	Fundamental
<b>Oregon Electrician 2017 NEC Changes: Conductors and Wiring Methods - Receptacles and Switches</b>	This two-part course discusses the 2017 NEC changes regarding conductors and wiring methods as well as receptacles and switches.Part I 2017 NEC Changes: Conductors and Wiring Methods Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part II 2017 NEC Changes: Receptacles and Switches (RV-11110) How important to you are the changes in the 2017 NEC codes for receptacles and switches? In this interactive online course you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles.	2	Fundamental
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #1</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in Articles 242 and 250 of the National Electrical Code®. The new article 242 contains the requirements for overvoltage, or surge, protection. Article 250 covers the grounding and bonding of systems and equipment. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part Two covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Article 300 contains general requirements for wiring methods. Article 310 covers conductors rated 2,000V and less. New Article 311 covers conductors rated more than 2,000V. Article 312 covers cabinets, cutout boxes, and meter socket enclosures. Article 314 covers outlet, device, pull, and junction boxes; conduit bodies; fittings; and handhole enclosures. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #2</b>	This is a two-part course which covers the 2020 NEC Changes. Part One covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). Notable changes include new rules for cables in thermal insulation, a new article (337) for Type P cable, clarifying the different types of service entrance cables, clarifying the rules for stainless steel raceways and fittings, and addressing cable trays that utilize flanged openings. Part Two of this course covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Articles 404 and 406 contain the requirements for switches and receptacles. Article 408 covers panelboards, switchboards, and switchgear. Article 410 covers luminaires, lampholders, and lamps. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	2	Intermediate
<b>Oregon Electrician 2020 NEC Changes: 2 Hour Program #3</b>	This is a two-part course which covers the 2020 NEC Changes. Part One of this course covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Article 411 contains the requirements for low voltage lighting. Article 422 covers appliances. Article 424 covers fixed electric space-heating equipment. Article 430 covers motors and their controllers. Article 314 covers air-conditioning and refrigeration equipment. Article 445 contains the requirements for generators. Article 450 covers transformers. Article 480 covers storage batteries. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part Two of this course covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Article 700 contains the requirements for emergency systems. Article 701 covers optional standby systems. Article 706 covers energy storage systems. Article 725 covers Class 1, 2, and 3 remote-control, signaling, and power-limited circuits. Chapter 8 covers communications systems. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	2	Intermediate
<b>OSHA 10 Hour Construction Program</b>	The Occupational Safety and Health Administration (OSHA) recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. And while workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's OSHA-online 10-Hour Construction Industry Outreach Training program can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. Here you can learn the basics about what topics fall under OSHA's umbrella, how OSHA operates to protect both workers and employers, and how you personally can benefit from knowing OSHA's standards. Note: OSHA regulations state that a student can not spend longer than 7.5 hours in a OSHA 10 course per training day. Please allocate a minimum of two (2) calendar days to complete this training. The specific Modules covered in this course are: <ul style="list-style-type: none"> <li>Introduction to OSHA</li> <li>Electrical Safety</li> <li>Fall Protection</li> <li>Struck-By &amp; Caught-Between Accidents</li> <li>Personal Protective Equipment (PPE)</li> <li>Scaffolds</li> <li>Cranes</li> <li>Hand &amp; Power Tools</li> <li>Excavations</li> <li>Materials Storage</li> <li>Demolition</li> <li>Hazards in Construction</li> </ul>	10	Fundamental
<b>OSHA Electrical General Requirements</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from electrical hazards. The Electrical General Requirements standard (29 CFR 1910.303) is one of OSHA's most frequently cited standards. Among these standards, this course covers requirements for listed and labeled equipment, proper use of flexible cords and cables, working space requirements, and effective electrical safety programs.	0.5	Intermediate
<b>OSHA Electrical Wiring Methods</b>	The Occupational Safety and Health Administration (OSHA) has developed electrical safety requirements to protect employees from hazards such as electric shock, electrocution, fires, and explosions. The Electrical Wiring Methods standard (29 CFR 1910.305) is one of OSHA's most frequently cited standards. This standard covers wiring methods, components, and equipment for general use. This course will address some of the frequently cited requirements and provide some examples to help clarify the standard.	0.5	Intermediate
<b>OSHA Pressure Vessel Chemical Cracking</b>	A pressure vessel is a storage tank or vessel that has been designed to operate at pressures above 15 p.s.i.g. Recent inspections of pressure vessels have shown that there are a considerable number of cracked and damaged vessels in workplaces. Cracked and damaged vessels can result in leakage or rupture failures. Potential health and safety hazards of leaking vessels include poisonings, suffocations, fires, and explosion hazards. Rupture failures can be much more catastrophic and can cause considerable damage to life and property. The safe design, installation, operation, and maintenance of pressure vessels in accordance with the appropriate codes and standards are essential to worker safety and health. This 1-hour interactive online course is based on Section IV: Chapter 3 of the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) Technical Manual, Pressure Vessel Guidelines. This course focuses on pressure vessels and low pressure storage tanks used in process, pulp and paper, petroleum refining, and petrochemical industries for water treatment systems of boilers and steam generation. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>OSHA Safety: Drilling</b>	The oil and gas industry employs hundreds of thousands of people and is a vital component of the national economy. Worker safety and health are important to this industry and it is essential to be aware of potential hazards present in the workplace. This 4-hour interactive online course discusses OSHA standards and directives that dictate OSHA safety procedures for oil and gas well drilling. This course also identifies common hazards and possible solutions to reduce incidents that could lead to injuries or fatalities.	4	Fundamental
<b>OSHA Safety: Introduction to Powered Industrial Trucks</b>	Approximately 100 fatalities and 36,340 serious injuries in general industry and construction occur annually due to powered industrial truck related accidents. With such staggering statistics, an employer is morally and legally obligated to take every safety precaution possible when dealing with powered industrial trucks. This 1-hour interactive online course focuses not only on the new OSHA standards for properly training employees to operate industrial trucks, but also the rules and regulations that must be followed to safely operate an array of work-oriented vehicles.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>OSHA Underground Construction</b>	This interactive online course is a brief review of Government Regulations regarding Underground Construction, Caissons, Cofferdams and Compressed Air as posted under Subpart S, Part 1926, from OSHA's Safety and Health Regulations for Construction. The course is broken into sections: Underground Construction Part I Underground Construction Part II Caissons & Cofferdams Compressed Air After reading over the OSHA material, a brief multiple choice quiz follows each section. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
<b>Outlook 2013: 01-Getting Started in Outlook 2013</b>	Outlook is a program that enables you to track all your communication with contacts, meetings or appointments, notes, and to-do lists in one place. Microsoft has offered this resourceful program for years, but released this version update to provide users with a sleeker and more efficient tool. Explore what's new in Outlook 2013 as you go over the basics. You'll explore the interface, discover customization options for the layout of Outlook as well as customization options within your messages. Communication is key to success. Therefore, you'll spend a portion of your time learning to work efficiently within the Mail section of Outlook. Overall, the topics covered will aid you in your preparations for Microsofts Outlook Exam 77-423.	1.5	Intermediate
<b>Outlook 2013: 02-Message and Contact Management in Outlook 2013</b>	Outlook is your go-to resource for all tasks and projects associated with communication. Part of communication is knowing the appropriate channel to reach a contact. As a result, you must understand how to use the People tab in Outlook for your benefit. Alongside the discussion on Contacts, you will also spend time on organizing your mail as you look over folder and configuration options. Prepare for your Microsoft Outlook Exam 77-423 by learning the tools Outlook provides for mail organization, the various save options, and contact categorization. Explore all of Outlook 2013's available features and tools for email and contact customizations.	1.5	Intermediate
<b>Outlook 2013: 03-Time and Task Management in Outlook 2013</b>	Through these discussions, you are preparing for Microsofts Outlook Exam 77-423. To be successful in this exam, as well as in the professional world, it is crucial that you know how to properly manage your time. Overall, the topics covered will aid in learning how to use Outlook tools to help with time management. The tools emphasized are those associated with the calendar, notes, journal, and tasks tab. In the end, you'll be able to share calendars, work with the scheduling assistant, forward calendar items, share meeting notes, and update to-do lists.	1.25	Intermediate
<b>Outlook Online Essentials (2018)</b>	Communicate Anywhere With Outlook Online, the Web-Based App For Managing Emails, Calendars, and People Sometimes you need a quick way to get to your stuff no matter where you are. Outlook Online, also called the Outlook Web App (OWA), is a convenient and powerful way to access your email, calendar, and contacts (People) from any web browser. Throughout this course, you will learn the main features and benefits of using Outlook Online from Office 365. The interface is very similar if you are using Outlook Online from your company as well.	2.5	Fundamental
<b>Overcurrent Protection I - Short Circuit Calculations</b>	This 3-hour interactive online course reviews the principles of electric systems during faulted conditions and how short circuit currents are calculated in both three-phase and single-phase systems. Since short circuits have such damaging impacts on an electric system, the magnitude of the expected fault currents and their impact on the components in the circuit must be understood. The simplified analytical procedures presented in this course will allow the user to quickly determine the expected level of fault currents in an electric system. These procedures are generally considered adequate for most applications of 600-volts or less. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Overcurrent Protection II - Coordination</b>	This 3-hour interactive online course reviews the principles of operation and coordination of electric system equipment during faulted conditions. Since short circuits have such damaging impacts on electrical equipment, their impact on the components in the circuit must be understood. The purpose of this course is to explain how the various protective devices react to faulted conditions and how to select the appropriate devices to ensure proper coordination. The theory of operation of protective devices is reviewed as well as how to properly coordinate the devices for selective coordination. Various electrical devices are reviewed including fuses, current limiting fuses, circuit breakers, transformers, conductors, busways, and motor controllers. This course reviews the principles of electrical equipment operation and coordination on an electric system during faulted conditions. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
<b>Overhead Crane Basics</b>	Components and functions of overhead cranes, function of rigging and slings, and common pre-use safety inspections for cranes and rigging.	0.25	Intermediate
<b>Overhead Crane Basics for Canada</b>	This course covers the basic components and functions of floor-operated overhead cranes used in industrial facilities. It also covers the inspections of cranes and rigging components that many facilities require to be performed before a crane can be operated. This course is based on relevant standards for overhead crane safety, as well as recognized general industry best practices. Using clear and concise diagrams and animations, this training covers the following topics: The components of overhead cranes The function of overhead cranes The function of rigging and slings Common pre-use safety inspections for cranes and rigging Importance of personal protective equipment	0.25	Intermediate
<b>Overhead Crane Operational Safety</b>	The importance of the load capacity for an overhead crane and rigging; effect of sling angle; safe procedures for lifting, moving, and setting down a load; safe procedures for operating a crane near people; and importance of personal protective equipment.	0.25	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Overhead Crane Operational Safety for Canada</b>	This course gives workers an overview of the safe operating procedures for moving loads with floor-operated overhead industrial cranes. This course covers the dangers associated with lifting and moving a load with an overhead crane, as well as safe procedures that will avoid those dangers. This course is based on relevant regulations for overhead crane safety, as well as recognized general industry best practices. Using clear, concise 2D and 3D diagrams and animations, this training covers the following topics: The importance of knowing the load capacity of the crane and the rigging How the sling angle can affect rigging Safe procedures for lifting, moving, and setting down a load Safe procedures for operating a crane near people The importance of personal protective equipment	0.25	Intermediate
<b>Overhead Hoists</b>	Do you know the basic safety and functional characteristics of working with a hoist? This interactive online course is intended for those authorized to operate or work around motorized and hand-operated hoists. You will learn about the different types of hoists and will be able to identify some of the instrumental parts of the hoists. Well show you how hoists are powered and how to operate them and inspect them safely. The material in this course is meant to supplement and support the training necessary to safely operate certain motorized and hand-operated hoists. This course provides the essentials of hoist operation and must be accompanied by both a knowledge and operational examination to determine competency of the operator. This course, alone, does not authorize operation of hoists.	0.5	Intermediate
<b>Oxyacetylene Welding Equipment and Safety</b>	Oxyacetylene welding, also known as gas welding, is a process which relies on the combustion of oxygen and acetylene to produce a very hot flame. When these gases are mixed together in the correct proportions, a flame is produced with a temperature that is sufficient to melt steel. This course will cover the basics of oxyacetylene welding and some best practices that should be followed in order to be safe on the job. We will go over how oxygen and acetylene are used in gas welding, the equipment that makes up a gas welding rig, and the PPE required to maintain a safe welding environment.	0.5	Intermediate
<b>Package: The Ultimate Project Manager Series</b>	This package includes all 26 hours of the Ultimate Project Manager series.	26	Intermediate
<b>Pallet Jack Safety</b>	A pallet jack is a relatively simple device that allows a person to pick up and move a palletized load which can weigh several times that of the operator. A typical manual pallet jack consists of a small frame that supports two low forks that are designed to fit under a pallet. A handle, or tiller, connected to the frame provides a method to push or pull the jack, to steer it, and a way to hydraulically elevate the forks. This course will focus on the principles of operation and instructions for safe use of the manual type of pallet jack.	0.25	Intermediate
<b>Palm Court - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Palm Harbor - A Dave Gibson Lot and Block Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for LOT AND BLOCK parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6 hour course titled 'Dave Gibson's All Star Lot and Block Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Parallel Circuits</b>	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in parallel are connected so the same voltage is applied to each component. In this course, participants will learn about the fundamentals of parallel circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate
<b>Parking Lot Design: Elements of Design</b>	This course presents the economic analysis and structural design of parking lots. This course will introduce participants to economic, technical and engineering related aspects of parking lots. Topics covered include an introduction to the types of parking lot pavements and engineering economic analysis of parking lots and parking lot pavements. This is followed by the structural design of flexible pavement systems and the structural design of Portland cement concrete pavement systems for parking lots. This course will enable practitioners to gain a thorough insight into the fundamentals of the economic analysis and structural design of parking lots. Examples, sample calculations, and practical cases are included throughout this course.	2	Advanced
<b>Parking Lot Design: Essentials</b>	This training presents the fundamentals of the planning and design of parking facilities. This course will introduce participants to parking users, parking facilities, and common parking terminology. The characteristics of parking users are presented in detail, followed by a discussion on the different types and classifications of parking and parking facilities. A review of parking configurations and the geometry of parking are then presented. The factors that are considered in developing efficient parking layouts are discussed in detail. This course concludes with a discussion on factors relating to parking accommodations and accessible parking spaces for users whose needs are met by regulations outlined in the Americans with Disabilities Act. This course will enable practitioners to gain a better understanding of the analysis and design of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Parking Lot Design: Parking Studies</b>	This course will introduce participants to the fundamental concepts of parking, and the types of parking and parking facilities. The metrics used in the analysis of parking facilities are presented in detail, followed by a discussion on the impacts of shared parking in mixed-use developments. This is followed by a detailed presentation on the prediction and analysis of queues and how they impact parking facilities as well as the adjoining street network. The factors that are considered in developing safe and efficient access to parking facilities are presented in detail. This course concludes with a discussion on the types of parking studies and the specific parking-related problems they are designed to address. This course will enable practitioners to gain a better and thorough understanding of the analysis of parking facilities. Examples and practical cases are included throughout this course.	2	Intermediate
<b>Password Security Basics</b>	This course provides an overview of password security and management, including the basic principles of password security, the elements of a strong password, and strategies of how to create and maintain passwords.	0.25	Fundamental
<b>Past, Present and Future of Building Energy Codes and DOE Appliance Mandates</b>	National, state, and even local energy codes have continued to change, requiring increasing energy conservation standards. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Standard 90.1 and International Energy Conservation model energy code have been increasing the energy conservation standard every three years. The Department of Energy (DOE) has mandated energy conservation standards for residential central air conditioners and heat pumps since 1992. These codes mandates have increased over time and will continue to do so. Commercial and residential construction techniques have changed dramatically over the past 20 years. This interactive online course will review the state of current mandates and standards and describe the future requirements of the model energy codes and DOE mandates.	2	Intermediate
<b>Pedestrian Safety</b>	Basic training on safely walking in active work zones. Learn about blind spots, the importance of eye contact, and designated walkways. Covers pedestrian safety guidelines, mobile equipment guidelines, and forklift driver guidelines.	0.25	Intermediate
<b>Peer Checking</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Peer Checking human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Performance Management: 01-Preventing Performance Problems</b>	The most effective method for managing performance problems is preventing them. As a manager, its important that you have the knowledge and tools used to prevent performance problems. To start out youll concentrate on how to successfully hire people that will contribute to your organizations skill set. Another preventative measure covered is how to establish performance expectations. Communication is a key tool to effectively set performance expectations. Youll also spend time learning about the best ways to give performance feedback. All in all, the topics covered will help you take a closer look at the dynamics of the employee-manager relationship, and gain insight on different ways to avoid performance problems in your staff. Begin your training with the first course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 02-Identifying Performance Problems and Causes</b>	Regardless of how effective you are in establishing practices that prevent performance problems, you will at some point run into performance problems. Performance problems will happen. The best response is to immediately take corrective action before the problem escalates. Learn about the different types of performance problems and their causes. Then you will discover the difference between conduct problems and performance problems. Because they are different in nature, the same techniques are not applied to handle conduct problems as those that are used to resolve performance problems. Youll also explore the role that personality plays in performance problems. Youll be able to tackle performance problems head on using the knowledge accumulated here. This is the second course in the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 03-Feedback and Counseling</b>	The most important tool a supervisor can use in addressing performance problems is feedback and counseling. Counseling can be used to get to the root of why employees are unable to meet performance expectations. Another tool that will assist you is a Performance Improvement Plan. Learn how to use these tools to effectively address performance problems and improve workplace performance. You will also go through presentations that will help you hone your managerial, supervisory, coaching, and teaching techniques. You will also concentrate on how to isolate and address problems that are exclusive to individual tasks, sets of tasks, and individuals. Each of these topics makes up the third course of the Problem Performance Management series.	1	Intermediate
<b>Performance Management: 04-Effectively Disciplining Problem Performance</b>	Delve into the final course of the Problem Performance Management series. Disciplining employees is the final phase in addressing performance issues. You will spend studying the elements of an effective disciplinary policy, the role of warnings, and steps taken to formally discipline an employee. Youll also look at the impact of mishandling discipline, particularly the implications it has on the employee-manager relationship. After taking disciplinary action, there are additional options to consider as manager including termination, Discipline Without Punishment, and performance change.	1	Intermediate
<b>Personal Accountability for Safety</b>	The goal is for every person to go home safe every day. To achieve this, we must all be personally accountable for safety. This module describes what it means to be accountable and how you can demonstrate personal accountability.	0.25	Intermediate
<b>Personal Protective Equipment</b>	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.67	Intermediate
<b>Personal Protective Equipment for Canada</b>	Every day, someone decides to give up their sight, hearing, fingers, toes, or worse to save a few seconds of effort. Sure it can be inconvenient and uncomfortable, but using personal protective equipment (PPE) properly is better than many unfortunate alternatives. Use this course to educate yourself and your team on head protection, eye and face protection, hand protection, foot protection, respiratory protection, and hearing protection.	0.5	Intermediate
<b>Personal Protective Equipment For Mold Remediation Contractors and Consultants</b>	From head to toe, the correct personal protective equipment is no accident. It is a series of informed choices to protect hands, lungs, eyes, clothes, skin, and feet from the potential health effects of the work environment. This course is designed to inform remediation contractors and consultants of the requirements and numerous options available to help their team remain safe and healthy while in a hazardous work environment.	1	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Personal Safety for Lab Technicians</b>	This course covers the nature of various laboratory hazards and the precautions and safety procedures technicians must practice to protect themselves while working in the laboratory environment. Specifically, this course looks at the hazards presented by chemicals, equipment, and microorganisms. Protective clothing and equipment as well as safe work procedures for preventing exposure and contamination are described. Practical information on detecting and treating chemical exposures and properly dealing with emergencies is also given. Housekeeping responsibilities and personal hygiene are presented as ways of promoting personal safety. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Persuasion: The Art of Communication</b>	All communication is persuasion! This course teaches you to communicate well and persuade effectively. There are many reasons why we communicate - to inform, to share our viewpoint, to educate, and to sell. Communications guru Barbara Evers would argue that all these forms of communication are in fact forms of persuasion. In this course Barbara Evers and Wofford Jones walk through tips and techniques to take advantage of when you need to communicate and persuade.	1.25	Fundamental
<b>Petroleum and Natural Gas: Mud Logging Sensors and Modern EDR Systems</b>	Technology advances with the passage of time. The existence of portable and digital processors provides proof of this advancement in technology. There is a rising demand for enhanced equipment such as geo-pressure control and administration, contributing to the need for an additional degree of drilling machinery monitoring or observing, mud circulation pressure, volume, and flow ratio sensors. This course discusses drilling data monitoring and drilling data analysis, the types of recorders used to monitor, rotary system management and circulating system management, and properties of mud.	1	Intermediate
<b>Petroleum Drilling Technology</b>	This course is designed to convey the oil and gas drilling aspects to the construction professionals. Drilling operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. Drilling fluids are composed of such chemicals which are dangerous for human health if they are not handled properly. So for a new person in this field, it is essential to have sound theoretical knowledge about it before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of oil and gas, he/she may not be recommended for any field work.	1	Intermediate
<b>Petroleum Engineering: Liquid Process Piping - General Piping Design</b>	Liquid process piping systems are used in many different industries to convey liquids to, from and between pumping, storage and treatment units. Proper design and construction of liquid process piping is necessary to ensure the integrity of a piping system during its service lifetime. This 2-hour interactive online course is the second in a series on general piping design including materials of construction, design pressure, sizing, stress analysis, flange, gaskets, and bolting materials, pipe identification, piping supports, and testing and flushing. Familiarity with the standards and recommendations for design of pressure piping will prepare the designer to make informed decisions throughout the design process.	2	Fundamental
<b>Petroleum Engineering: Liquid Process Piping - Introduction and Design Strategy</b>	Liquid process piping systems are used in many different industries to convey liquids to, from and between pumping, storage and treatment units. Proper design and construction of liquid process piping is necessary to ensure the integrity of a piping system during its service lifetime. This 1-hour interactive online course is an introduction to the design strategy of liquid process piping including piping design analysis, specifications, drawings, bases of design, loading conditions, and piping layout. Familiarity with the standards and recommendations for design of pressure piping will prepare the designer to make informed decisions throughout the design process.	1	Fundamental
<b>Petroleum Instrumentation and Measurement</b>	This course is designed to convey the basics of oil and gas instrumentation and measurement (primarily downstream) to the construction professionals and learners. Oil and gas operations have a sensitive and critical importance as it deals with very high pressure, temperature and extreme natural conditions. So for a new person in this field, it is essential to have sound theoretical knowledge about measurement instruments and measuring techniques before getting started practically. Its importance in this regard is undeniable. In the oil and gas industry, safety is the first preference. If a person possesses superficial knowledge and understanding of equipment and instruments, he/she may not be recommended for any field work. This course is important to impart basic knowledge of process variables measuring instruments and their measuring techniques which we use in oil and gas downstream. It also conveys the knowledge of process control automation and control valves.	2	Fundamental
<b>Petroleum Refining Processes and Related Health and Safety Considerations</b>	The petroleum refining industry is one of the largest sources of greenhouse gases among all manufacturing sectors in the US economy. Along with the environmental impacts of their operations, refiners face complex regulatory issues involving their products. The nature and chemistry of different major refinery products or by-products and their effects on human health and the surrounding environment makes it imperative for regulatory agencies like the EPA to impose heavy regulations on the petroleum refining industry in comparison to other industries in the US. It is important that the practitioners associated with the petroleum refining industry know about the operations in the refining process, the nature of the major products and by-products from the refining industry, the chemicals used in the process, and the overall impacts of the refining process and products on human health and safety to meet the ever increasing regulatory requirements of this industry. This course aims to fulfill these requirements by discussing the basic chemicals, processes, products and environmental impacts involved in refining petroleum.	3	Fundamental
<b>Phasors and AC Circuit Analysis</b>	This course will build a foundation of skills you can use to become familiar with concepts involved with fault load and load flow studies, along with arc flash analysis in electrical power distribution systems. This course is also an ideal refresher course for electrical engineers preparing for the PE Exam (ECE - Power). Basic concepts covered in this course include: The sinusoidal forcing functions and phasor notation Phasor relationships for resistors, inductors, capacitors and the concept of impedance Analysis of single and poly-phase electric circuits Power in single-phase and balanced three-phase circuits Per-unit quantities and changing the base of per-unit quantities	2	Fundamental
<b>Photoswitches, Proximity Sensors, and Feedback Devices</b>	Photoswitches, proximity sensors, and feedback devices are all used to detect objects or information. They are useful in industrial and manufacturing environments to sense product or personnel in the line of machinery or equipment. This module discusses the operation of the different types of each of these.	0.25	Intermediate
<b>Physics Basics</b>	Understanding physics is a huge endeavor as it covers so many different scientific elements, from the gravity that keeps people from floating into space to the momentum that keeps an object in motion. Simply defined, physics is a branch of science that studies matter and its motion, as well as how it interacts with energy and forces. It covers such subjects as motion, electricity, work and energy, astronomy, waves and sound, light and optics, and nuclear physics and relativity. This module will focus on how physics relates to motion, work, and energy.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Phytotechnologies: Using Plants to Clean Up</b>	Phytotechnologies are a set of techniques that make use of plants to achieve environmental goals. This course will highlight the advantages and limitations of phytotechnology—whereby plants uptake and remove contaminants. We will also cover the cost-effective, natural cleanup methods that have a growing role in the following areas: remediation of environmental contaminants, eco-restoration, engineered wetland systems, and biofuels. The course will conclude with a discussion of current scientific case studies.	3	Fundamental
<b>Pier and Beam Foundation Design</b>	This course will provide technical information important in the design of pier and beam foundation systems. The design process will focus on how to apply wind and flood loads to these foundation systems using ASCE 7-10, ASCE 24, the Wood Frame Construction Manual and the International Building Codes. The use of the masonry code will also be covered. An example is included that uses elements of each of the important references. Design methods for these foundations are not covered in most structural engineering programs at the university level and have not been found in any practice journals. While the design wind loads are frequently determined for buildings, the distribution of these loads to the foundation and supporting soil and the inclusion of flood loads are important and crucial elements of the design process.	2	Advanced
<b>Pipes and Valves: Basic Pipefitting Skills</b>	Basic Pipefitting Skills is a course designed to familiarize participants with basic techniques for determining piping configurations and dimensions, measuring and cutting pipe, and correctly installing pipe and fittings. After completing this course, participants should be able to identify common piping and fittings, use blueprints and other drawings to determine piping configurations, measure and cut pipe, and install piping and fittings that are plumb, level, and square.	2	Intermediate
<b>Pipes and Valves: Calculating Offsets</b>	Calculating Offsets is designed to familiarize participants with methods for calculating dimensions and angles for piping offsets. After completing this course, participants should be able to use right triangles and basic formulas to calculate fitting angles, complementary angles, and Offset, Run, and Travel dimensions for various offsets.	2	Intermediate
<b>Pipes and Valves: Installing Flanges, Copper, and Plastic Pipe</b>	Installing Flanges, Copper, and Plastic Pipe is a course designed to familiarize participants with basic techniques for correctly installing steel flanges, copper tubing, and plastic pipe. After completing this course, participants should be able to correctly install various types of steel flanges, calculate fitting take-off for copper fittings, solder copper fittings to copper tubing, calculate fitting take-off for plastic fittings, and join plastic pipe and fittings using the solvent cement method.	2	Intermediate
<b>Pipes and Valves: Installing Pipe Hangers and Supports</b>	Installing Pipe Hangers and Supports is a course designed to familiarize participants with basic techniques for correctly installing pipe hangers and supports. After completing this course, participants should be able to explain how pipe hangers and supports handle piping movement, install various types of pipe hangers and beam attachments, install various types of pipe supports, and install wedge-type and drop-in concrete anchors.	2	Intermediate
<b>Pipes and Valves: Installing Screw and Welded Pipe</b>	Installing Screw and Welded Pipe is a course designed to familiarize participants with basic techniques for correctly installing screw and welded pipe and fittings. After completing this course, participants should be able to perform job planning and material verification; determine fitting take-off for screw, socket-weld, and butt-weld piping; and correctly assemble screw, socket-weld, and butt-weld piping.	2	Intermediate
<b>Pipes and Valves: Pipes and Pipe Fittings</b>	This course is designed to familiarize participants with common types of pipes, pipe joints, and pipe fittings, and to provide general guidelines for working with pipes. After completing this course, participants should be able to identify common materials used to make pipes, and explain how pipes are identified and sized. They should also be able to identify common types of pipe joints and pipe fittings, and describe procedures for calculating pipe lengths, cutting pipe, and threading pipe.	2	Intermediate
<b>Pipes and Valves: Special Calculations</b>	Special Calculations is designed to familiarize participants with methods for calculating parallel offsets, areas, volumes, and liquid pressures. After completing this course, participants should be able to use right triangles and basic formulas to calculate parallel offsets using the equal spread method and the unequal spread method. They should also be able to use formulas to calculate areas, volumes, and liquid pressures.	2	Intermediate
<b>Pipes and Valves: Valve Maintenance</b>	This course is designed to familiarize participants with the basic procedures for performing routine maintenance on a valve and for performing a valve overhaul. After completing this course, participants should be able to describe tasks involved in preparing for valve maintenance and explain how to adjust and replace valve packing. They should also be able to describe how to disassemble a valve, inspect its parts, perform maintenance on it, and reassemble it.	2	Intermediate
<b>Pipes and Valves: Valve Types and Operation</b>	This course is designed to familiarize participants with the basic components and operation of valves commonly found in industrial sites. After completing this course, participants should be able to explain how valves can be classified, describe the parts and operation of various types of valves, and describe how valves can be operated.	2	Intermediate
<b>Piping and Auxiliaries: Basic Components and Functions</b>	This course is designed to familiarize participants with some of the basic components commonly found in piping systems. After completing this course, participants should be able to state the purpose of piping and pipe fittings and describe some common types of pipe fittings. They should also be able to describe devices that are used to accommodate the weight and movement of piping, and they should be able to explain how insulation and heat tracing help to control temperatures in piping systems.	2	Intermediate
<b>Piping and Auxiliaries: System Components and Operation</b>	This course is designed to familiarize participants with some of the auxiliary components commonly found in piping systems. After completing this course, participants should be able to describe the function and operation of rupture discs, relief valves, safety valves, and some common types of steam traps. They should also be able to describe basic procedures for draining and filling liquid systems, and they should be able to describe some typical operator checks for fluid systems.	2	Intermediate
<b>Plan Review Techniques for Infrastructure Projects</b>	Infrastructure projects take an immense amount of planning - drawings and specifications, design and construction teams, and communication. You can be the effective coordinator of a successful project if you know the right plan review techniques and use them expertly. This interactive online course teaches you those techniques and gives you the checklists you can start using right away to achieve your goals in completing an infrastructure project you can be proud of.	2	Intermediate
<b>Plant Science: Fluid Systems</b>	This course is designed to introduce participants to the characteristics, components, and operation of fluid systems. After completing this course, participants should be able to explain, in general terms, what a plant system is and what a fluid is. They should also be able to explain the basic layout of a liquid system and describe energy conversions in a liquid system. Participants should also be able to describe the basic parts of a compressed air system and the basic operation of several gas and vapor system devices.	2	Intermediate
<b>Plant Science: Forces and Machines</b>	This course is designed to introduce participants to scientific principles associated with applied forces and the operation of basic machines. After completing this course, participants should be able to define work, power, and efficiency; and explain the mechanical advantage of this inclined plane and the lever. They should also be able to explain the hydraulic principle and the relationship between friction and the operation of machines.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Plant Science: Gases and Flowing Liquids</b>	This course is designed to familiarize participants with basic concepts associated with the properties of gases and flowing liquids. After completing this course, participants should be able to describe the major properties of gases and explain how these properties are related. They should also be able to explain how pressure can be measured and to describe the effects of flow, velocity, and friction on the head pressure of a liquid.	2	Intermediate
<b>Plant Science: Heat</b>	This interactive training is designed to introduce you to some of the basic principles associated with heat and heat transfer. In this course, we will describe some of the effects of heat, the relationship between temperature and thermal energy, and the Law of Energy Conservation. We will define the terms sensible heat and latent heat. Also, we will discuss the effects of pressure on the temperature at which a substance undergoes a phase change.	0.5	Intermediate
<b>Plant Science: Solids and Liquids</b>	This course is designed to familiarize participants with basic scientific principles that relate to solids and liquids. After completing this course, participants should be able to describe the general molecular structure of solids, liquids, and gases. They should also be able to describe specific properties associated with solids and liquids.	2	Intermediate
<b>Plumbing Using PVC Pipe</b>	There are numerous different types of PVC pipe, some of which are acceptable for use inside buildings and some which are acceptable only outside buildings. PVC pipe is common for drains and vent pipes, but less common for pressure pipe within buildings. This course will discuss the various types of PVC pipes that are available and where they may be used, provide information on proper installation procedures, and discuss the fittings that can be used to connect PVC to other pipe materials.	1	Fundamental
<b>PMBOK® Guide - Sixth Edition: 01-Project Management Overview</b>	Discover the basics of what the project management profession is all about. Begin by studying the history and development of project management, as you observe how manufacturing, world events, and education shaped today's lifecycle processes. You'll spend time learning about the individuals and programs that established project practices and principles. You will also concentrate on the elements that define a project. Overall, you'll begin to understand how project management contributes to the development of products, goods and services.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 02-Managing Projects within Organizations</b>	In Managing Projects within Organizations Video Training, you'll see how the concepts of project management have been applied throughout history -- from the building of the pyramids of Egypt and the moon landing to the smaller-scale projects handled by businesses every day. This course will help students develop skills and understand fundamental concepts that will enable them to deliver projects with greater levels of proficiency and optimization.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 03-Project Management Process Groups</b>	Project management has helped deliver some of mankind's biggest achievements. And while project management permits effective delivery of products and services, there are plenty of examples where projects have missed their mark and delivered less than stellar results. The reason for this is process. In order for a project to be managed successfully, the project manager and team must adhere to processes that will drive the project through its life cycle in a way that will meet specifications and the expectations of the project's sponsor. In Project Management Process Groups, you will see that, while project processes provide the manner in which a project can produce a successful project, there are other key elements: knowledge, experience, expertise, and ability to lead a team - all of which the project manager must be able to deliver in conjunction with project processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 04-Execution, Monitoring and Controlling</b>	In Execution, Monitoring and Controlling, students will learn about two significant processes that are part of the Project Management Institute's Project Management Body of Knowledge (PMBOK®): the Direct and Manage Project Execution and the Monitor and Control Project work processes. Activities related to these processes represent the bulk of a project manager's duties during a project. At the conclusion of this course, you'll more fully understand the intricacies of leading a project team through project activity execution, monitoring and control.	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: 05-Project Change Control and Closure</b>	Project managers and project team members develop subject matter expertise as a result of project development. This expertise, in turn, helps to drive necessary changes in project activities. One activity a seasoned project manager always plans for is change. In Project Change Control and Closure, you'll learn how to manage changes to project through a formal change control process. You'll also pick up guidance on properly closing a project or a phase of a project. The course incorporates the procedures and processes of the Project Management Institute's Project Management Body of Knowledge (PMBOK® Guide), specifically the Perform Integrated Change Control and the Close Project or Phase processes.	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 06-Initiation Basics, Developing a Project Charter and Project Management Plan</b>	A project consists of many different tasks and phases that must be integrated and managed to successfully complete the project. Keeping track of all activities that must be accomplished is no small undertaking; a well-planned and professionally integrated project pulls all of these activities together, enabling all participants to progress through their tasks and meet milestones. In Initiation Basics, Developing a Project Charter and Project Management Plan, you'll learn about project integration management, why a project is initiated and potential pitfalls that can derail a project at any step. You'll also learn the purpose of a project charter and how to create one for your project. Plus, you'll learn how to develop a project management plan.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 07-Collecting Requirements and Defining Scope</b>	One of the more important tasks that a project manager performs during the management of a project is identifying the project's requirements. Determining what is required of a project is necessary to identify work that has to be performed, and to establish metrics that are used to evaluate whether the work is acceptable and successful. In Collecting Requirements and Defining Scope, you'll learn why it's critical for project managers to properly and completely identify the requirements for a project as soon as possible. You'll also learn how project managers identify a project's requirements, including processes dictated by the Project Management Institute.	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 08-Monitor and Control Project Scope</b>	A critical factor in the success of a project is the project manager's ability to monitor and control the scope of the project. During the implementation of processes within the Planning Process Group, a great amount of effort and planning goes into the collection of project requirements, the creation of a work breakdown structure, and the definition of the project's scope. Monitor and Control Project Scope will teach you about the important principles and best practices employed by project managers to safeguard the scope of their projects. In addition, you'll learn about the Project Management Institute's Verify Scope and Control Scope processes, and how these processes are related to the Project Scope Management Knowledge Area.	1.25	Intermediate

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Title	Description	Hours	Level
PMBOK® Guide - Sixth Edition: 09-Defining and Sequencing Project Activities	Time management is a knowledge area that takes into the consideration project constraints that pertain to time. It incorporates all the processes that are required to ensure the effective and timely completion of projects. The processes that make up project time management occur at least once within every project, in one or more of the project phases. These processes also overlap and interact with processes from the other knowledge areas to help develop and deliver components of a project. The concept of time management permits the project manager and team to develop a schedule by which project activities will be managed. Depending upon the size, scale, and scope of a project, scheduling may be an activity that could take one resource less than a day to complete or, for more complex projects, may require scheduling software to ensure that activities and resources are synchronized throughout the life cycle of the project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1	Intermediate
PMBOK® Guide - Sixth Edition: 10-Developing and Controlling the Project Schedule	Developing the schedule of a project is the product of analyzing activities like sequence, duration, resource requirements, and project constraints. Scheduling tools typically assimilate data in regard to the analysis provided to promote a project schedule. Activities such as plan start and completion dates, milestones and dependencies are among the outputs provided by scheduling tools. The project schedule can then become the project's baseline for tracking purposes. In Developing and Controlling the Project Schedule, you will learn how iterative revisions and maintenance of the schedule are tasks that the project manager must adhere to for the life of the project.	1	Intermediate
PMBOK® Guide - Sixth Edition: 11-Estimating Activity Resources and Duration	One of the more compelling issues that a project manager needs to deal with is a constant reminder to do more with less. Over time, the luxury of having resources in place without conflicts due to other project activities diminishes substantially. The project manager will need to engage sponsors and stakeholders to ensure the appropriate level and types of resources required to get the job done are available when needed. In this course, you will see how the project manager and team use the Estimate Activity Resources process to help determine resource requirements in the form of cost or time. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
PMBOK® Guide - Sixth Edition: 12-Controlling Costs	Cost management is one of the most integral components of the project management process. Controlling Costs shows how the project manager assumes full responsibility for cost oversight and delivery of the project within budgetary constraints. Financial tools and analysis enable the project manager to oversee activities and the cost associated with delivering the project's product. Control Costs is the process of monitoring your project status to ensure that your budget is up to date that the project's value is being delivered to meet expectations.	1	Intermediate
PMBOK® Guide - Sixth Edition: 13-Estimating & Budgeting Project Costs	Project Cost Management is perhaps the most comprehensive knowledge area in regard to determining the scope of a project, how it will be funded, and the steps that will be taken to ensure that funds appropriated for the project are managed and used correctly. Essential to every good plan are the thoughts and processes that will enable the plan to proceed. Cost management drives project deliverables in line with project constraints. For example, if project costs are limited, a project manager may have to scale back on subject matter experts. If the cost of quality is higher than expected, the project manager needs to realign project deliverables to ensure the level of quality delivers against requirements. This course provides an in-depth look at the processes associated with cost management. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.75	Intermediate
PMBOK® Guide - Sixth Edition: 14-Project Quality Planning	Project Quality Management is about the managing of quality for the project. This knowledge area incorporates many of the best practices and approaches of the larger quality management discipline; but only to the extent to which it supports the project. Project Managers are responsible for quality in terms of their project. The Project Management Body of Knowledge is a guide to apply quality management best practices to the needs and expectations of your project. Project Quality Planning teaches you to learn and apply this knowledge, so you can keep it in the framework of a project and its management. All the approaches, best practices, tools and techniques, and processes revolve around meeting the quality needs of the project.	1	Intermediate
PMBOK® Guide - Sixth Edition: 15-Quality Assurance and Cost Control	A good project manager should apply processes, best practices, and tools to ensure that all aspects of development incorporate quality standards as a project's product is being produced. The project manager should always look to the past to garner lessons learned and apply that knowledge so as not to repeat history where negative impacts were sustained. This course shows how the Project Quality knowledge area promotes those processes, tools and techniques that assist the project team in planning, delivering and controlling the right levels of quality throughout all project development processes. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.75	Intermediate
PMBOK® Guide - Sixth Edition: 16-Managing Projects for Human Resources	The strength of a project is based on the resources acquired. The Planning Process Group allows project managers to determine resource requirements for each activity within the project and ensuring that the delivery of raw materials along with the people to develop those raw materials is sequenced according to project schedule timelines. These activities fall into the first two processes in the Human Resource Management Knowledge Area: Develop the Project Team and Manage the Project Team. Managing Projects for Human Resources covers the processes, inputs, and tools and techniques involved with developing and managing the project team. Furthermore, this course will teach the principles and best practices used by project managers to establish a solid team capable of producing project deliverables on time and within budget.	1.75	Intermediate
PMBOK® Guide - Sixth Edition: 17-Planning Projects for Human Resources	As a project manager, you will take on a variety of activities that will ensure the successful completion of the project. Among the most important activities that you will undertake is the management of resources that you will need to accomplish the tasks within the project plan. Typically resources come in two forms: raw materials that are developed into components of a project and human resources that will perform the development work upon the raw materials. Planning Project Human Resources course will take you through the processes that pertain to the Project Human Resource Management knowledge area the processes of identifying and detailing roles and responsibilities, skills and relationships within a project.	1.5	Intermediate
PMBOK® Guide - Sixth Edition: 18-Processes for Managing Project Communications	Project communications encompass a variety of deliverables such as project updates, project dashboards, performance metrics, status reports, schedule updates and details pertaining to the project budget or any of its constraints. Additionally, updates are made to the project management plan where details pertinent to stakeholder management, communications management, and project baseline activities can be found. Through this course, you will gain insight relevant to communication methods, information management systems and performance reporting activities that will be used as either tools or techniques while managing communications. You will also learn about the outputs or products of the manage communications process which are essentially project communications. Upon completion of this course, you will have a working knowledge of the inputs to manage communications, those being the communications management plan, work performance reports, enterprise environmental factors and organizational process assets. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	2	Intermediate

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Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 19-Stakeholders and the Communication Management Plan</b>	One of the most important skills a project manager needs to acquire and hone is the skill of being an effective communicator. Through experience and time on the job, a project manager will acquire a substantial degree of expertise and capabilities. Those skills will contribute to marketable competencies that prospective clients will require and are willing to pay a premium for. Stakeholders and the Communication Management Plan shows how effective communications works as an enabler, permitting a project manager to clearly articulate assumptions, objectives, goals and requirements; all of which are rudimentary components or deliverables of projects. Effective communications also contribute to efficiencies in project delivery and, while used often by the project manager, should be practiced by all project stakeholders and project team participants. A failure to communicate within a project can bring about risks and impact the overall integrity of the project manager and the project team. In order to be effective, the project manager needs to manage communications processes that will support project deliverables while syndicating project activities in the correct manner to all project participants.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 20-Identifying Project Risks</b>	In Identifying Project Risks, you will learn about the Identify Risk process as outlined in the PMBOK®. The Cost Management Plan will be used to identify risk in regard to the cost constraints, or budget, of a project. The Schedule Management Plan will be used to identify risks associated with project development, especially predecessors and successors, and how risk can impact their ability to meet a project's critical path. The Quality Management Plan will be used to help determine the risks associated with integrating quality within work packages, or at the activity level. The Human Resource Plan helps detail risks associated with resource availability and their aptitude in regard to project deliverables. This helps ensure that the project manager has the right people at the right time to develop project deliverables. Additional inputs are all reviewed and taken into consideration to help drive and determine potential risk within a project. Upon completion of this course, you will know the required details and understand the skills required to identify project risk, and will have gained experience in detailing project plans, understanding assumptions, be able to revert to prior project artifacts for historical reference, and understand the need for organization within a project and the requirement for keeping accurate records and project artifacts.	1.75	Intermediate
<b>PMBOK® Guide - Sixth Edition: 21-Performing Risk Analysis</b>	All projects experience some degree of risk throughout the project lifecycle. Risk can be negative, in the form of a threat to a project; or positive, in the form of an opportunity. Perform Risk Analysis is the process of prioritizing risks for further analysis or action by combining and assessing the probability and impact of risk's occurrence. While risk exists within every project, the degree of risk based on probability and impact is what helps determine the type of corrective or preventive action that the project team will perform. Within this course, you will review process inputs, tools, techniques and outputs attributed to the Perform Risk Analysis process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 22-Risk Management Planning</b>	Through this Risk Management Planning course, you will gain a working knowledge of the Project Risk Management knowledge area and the six processes that are aligned within the Project Planning and Project Monitoring and Control process groups. You will learn to develop a Risk Management Plan that will be used throughout the course of the project to provide guidance and direction to the project management team and detail processes and planned activities that are expected to be applied throughout the project. Plus, you will learn to assimilate risk processes to project life cycle work and be able to determine the tools and techniques required to quantify risk as it relates to activities that are developed within a project. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 23-Risk Response, Monitor and Control</b>	Upon completion of this course, you will have gained an appreciation of the intricacies involved with planning appropriate risk response activities along with monitoring and controlling project risk. Planning risk response is the process of developing options that either reduce threats or promote opportunities. By quantifying and analyzing risks at the activity level, the project team has the ability to prioritize risks and optimize plan of action so that resource and budget constraints are taken into consideration. This helps maintain equilibrium within the project and helps deliver its products on time and within budget. This process occurs after quantitative risk analysis activities are complete when each risk response is based on a thorough understanding of how it will address an impact the risk. Risk response activities also identify accountable individuals and groups responsible for the agreed-upon mitigation and ownership of any potential issue should one arise. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 24-Managing Procurement During Your Project</b>	This Managing Procurement During Your Project course serves as a fundamental introduction to project procurements processing. It covers the process inputs relevant to managing procurements, conducting procurements, controlling procurement activities and closing procurement work within a project. It also covers techniques for selecting sellers that will participate in project activities. It shows how a project manager can develop a pool of prospective sellers and illustrate activities based on procurement scenarios. The course covers such procurement tools and techniques as bidder conferences, proposal evaluations, independent estimates, advertising and negotiation. The course also covers details pertaining to procurement documentation and artifacts such as contracts between buyers and sellers that will be used to acquire both resources and raw materials to develop components of a project. Equally important to the contractual agreement and type of agreement that a project team would enter into, is the administration of the contract once the agreement has been reviewed, finalized and approved. At the end of this course, the student will have a comprehensive foundation in managing procurement activities that pertain to project management - the process inputs, tools and techniques and process outputs that comprise the Conduct Procurements process. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)	1.5	Intermediate
<b>PMBOK® Guide - Sixth Edition: 25-Planning Procurement for Your Project</b>	As a project manager, your role will be to facilitate, or you might even say orchestrate, all activities that pertain to developing the product of a project. In doing so, you'll be gathering information, communicating with stakeholders and developing plans that the project team will use throughout the project lifecycle. Part of those plans and directions pertain to the purchase of goods and services needed within the project. This is the Project Procurement Management knowledge area. Within this course, you will learn the definition of procurement and the value of procurement processes to project activities. You will also cover procurement contracts to understand the different types of contracts that exist; why there are different types of contracts, and who benefits by the stipulations inherent to a specific type of contract. Upon completion of this course, the student will be well-versed in the definition of procurement as it pertains to project management along with the plan procurement management processes identified within the Project Procurement Management knowledge area. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.5	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>PMBOK® Guide - Sixth Edition: 26-Stakeholder Identification and Planning</b>	Though projects are temporary endeavors undertaken to create a unique product, service, or result, the undertaking of a project affects many things. The results of the project are to make a change; that's the objective of the project. Many people, groups, and entities hold some sort of stake in that change. Those that hold stake in a project and the project's outcome are deemed Project Stakeholders and must be managed within the project management of a project. As a result, there is a knowledge area within project management dedicated to stakeholder management. Two of the processes contained within this knowledge area are Identify Stakeholders and Plan Stakeholder Management. Learn the key tools, techniques, and inputs included in these processes to successfully manage a project's stakeholders. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1.25	Intermediate
<b>PMBOK® Guide - Sixth Edition: 27-Project Stakeholder Engagement and Communication</b>	Focus on the processes Manage Stakeholder Engagement and Control Stakeholder Engagement. You will find discussions on the purpose of those processes, their inputs, outputs, tools and techniques. You will sort through how to maintain the most effectual engagement of the needs and expectations of stakeholders, manage times when needs and expectations are not being met, and handle change or requesting changes when improvements or adjustments are recommended. Whoever the stakeholders are in your project, they must be managed and managed properly. Upon course completion, you will know what project stakeholder management is, how to manage stakeholder engagement, and control engagement throughout a project's lifecycle. Materials in this class are based on the text, A Guide to the Project Management Body of Knowledge, (PMBOK Guide)	1	Intermediate
<b>PMBOK® Guide - Sixth Edition: Agile Methodologies in the 2020 PMP® Exam Outline</b>	Being agile and knowing agile methodologies are crucial for every project manager. Agile project management is a major part of the Project Management Professional® certification exam. Although there is more than just knowing agile frameworks, you must also hold the agile mindset. Per the 2020 Examination Content Outline, approximately 50% of the PMP® Exam is agile focused. This course assists you in understanding that balance of project management approaches and more importantly what you need to prepare for as a PMP® candidate. Managing projects in an agile way has similarities to traditional plan driven techniques, but there are substantial differences you must comprehend and be able to practice to be successful on the PMP® Exam.	1	Advanced
<b>PMBOK® Guide - Sixth Edition: Project Management Professional (PMP)® Exam Outline Changes for 2020</b>	Times change. Are you ready? Project managers are born ready, right? We are always ready to take on the immense challenges of juggling the complexities of a project to achieve success. No place represents success in the project management discipline than the Project Management Professional (PMP)® certification. The only way to achieve that distinction is by passing the PMP® exam. Like you, the PMP® exam is changing. If you are a candidate seeking your PMP® credentials, then you better be ready. As of 2021, the PMP® exam will be based on the 2020 Examination Content Outline (ECO) developed by the Project Management Institute (PMI)®. This course explains those changes, the reason for those changes, and what you should know to succeed based on those changes. The PMP® exam is constantly evolving. Likewise, you are growing, learning, and becoming a more dynamic project manager. That is showcased in the PMP® certification.	1	Advanced
<b>Pneumatic Tool Safety</b>	Pneumatic tools are powered by compressed air. Common air-powered hand tools include jack hammers, chipping hammers, wrenches, grinders, and nail guns. Some of these tools shoot or create projectiles which can cause bodily injury. Additionally, pneumatic tools produce ear-damaging noise and release atomized oil and water vapor into the air. This module describes pneumatic tools hazards and how to deal with them.	0.25	Intermediate
<b>Pneumatics: Actuators and Positioners</b>	Typically, pneumatic actuators and positioners are rugged and dependable. But like any other piece of equipment, their parts can wear out from the rigors of around-the-clock use and may need to be replaced or adjusted from time-to-time. In this interactive online course, we're going to look at several different actuators and positioners to see what their component parts are, how they work, and how to adjust them.	1	Intermediate
<b>Pneumatics: Basic Pneumatic Control Systems</b>	In your plant, there are process conditions that can vary or change, such as temperature, pressure, flow and level. Frequently, these process variables must be maintained at or near a desired value. Understanding how these systems operate will allow you to manage your system at desired operating conditions. This interactive online course will teach you about the elements normally found in a basic pneumatic control system. You will learn about control systems used to maintain temperature, pressure, flow and level. Additionally, you will learn about resources that provide information about pneumatic control systems.	1	Intermediate
<b>Pneumatics: Basic Pneumatic Control Systems and Diagrams</b>	Pneumatic instruments play an important role in the overall operation of a plant. Knowing how to troubleshoot and fix problems with pneumatic instrument systems will allow you to get your plant quickly back into operation. This interactive online course will use an example of a level control system to teach you about pneumatic instrumentation, basic pneumatic instrument groups and their functions. You will also learn about commonly used plant system diagram symbols and how they are used in diagnosing and correcting problems in the instrument systems found in your plant.	1	Intermediate
<b>Pneumatics: Controllers</b>	In industrial process plants, it's critical for pneumatic controllers to work properly and to be adjusted correctly. Understanding how controllers operate will help you when you're repairing a controller or tuning a pneumatic control system. This interactive online course will teach you about several types of pneumatic controllers. You will learn how these controllers operate and how to make basic adjustments to the controllers. You will also learn the mechanisms in a controller and how their four basic functions operate.	1	Intermediate
<b>Pneumatics: Indicators and Hand-Auto Control Stations</b>	Transmitters, recorders, signal converters, indicators, and hand-auto control stations are all important pieces of instrumentation and control equipment used in pneumatic systems. Understanding how these instruments function will allow you to maintain your system at desired operating conditions. This interactive online course will teach you about the relationship between the input and output of a transmitter and how a pneumatic transmitter develops an output pressure signal that accurately represents the value of a process variable. You will also learn how to perform calibration adjustments on a typical pneumatic transmitter. Additionally, you will learn the function and purpose of hand-auto control stations.	1	Intermediate
<b>Pneumatics: Multi-Element Pneumatic Control Systems</b>	Multi-element pneumatic control systems like all process control systems, operate primarily to maintain a process variable (such as level, temperature, flow, or pressure) at or near a predetermined value known as set point. This interactive online course focuses on several types of multi-element pneumatic control systems that are commonly used in industrial plants. The basic design and function of the control system are explained, and emphasis is also placed on how the instruments and components in the system work together to keep a process variable at or close to set point.	1	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Pneumatics: Pneumatic Instrument Tubing</b>	In any industry that uses pneumatic instrument systems to monitor and control plant processes or conditions, you'll discover miles of associated pipes and tubing routed throughout the plant. Without these intricate networks of piping and tubing, a plant couldn't operate. The important job of installing pipe and tubing for pneumatic control systems often belongs to you, the instrument technician. You'll be concerned specifically with installing pipe for instrument air supplies and tubing from one component to another in pneumatic systems that control process variables. Our goal in this interactive online course is to examine the basic skills and information you need to know to install piping and tubing for a pneumatic control system. To meet this goal, we'll observe a qualified technician as he puts a piping and tubing installation together. We'll take a close look at the materials and tools he uses and the technique he applies. However, before we start to do any actual work with pipe or tubing, we need to establish what pipe and tubing are, and we need to take a look at the major characteristics of each; their function, the important size factors for both, and the type of material they're made of. By doing this, we'll have a better understanding of how pipe and tubing are similar in some respects but different in others.	1	Intermediate
<b>Pneumatics: Self Balancing Instruments</b>	At first glance, most pneumatic control equipment seems like a maze of bellows, cams, beams, and other mechanisms packed into a small area. Sometimes the design makes it appear as if the instrument is hard to understand. However, many of these instruments are fairly easy to understand if you know what you're looking for. In this interactive online course, we'll look at a few types of force balance and motion balance instruments in greater detail. We'll see how they operate and where common adjustments are located.	1	Intermediate
<b>Pneumatics: Transmitters</b>	Most pneumatic instruments have in common basic components and structures. And even though they may look different, their operation is often quite similar. In this interactive online course, we will cover the information needed to recognize the common components and structures of most pneumatic instruments and to understand how the common structures are related. We will cover types of pneumatic instruments, components, and mechanisms, self-balancing instruments, input mechanisms, error detector mechanisms, and output/balancing mechanisms.	1	Intermediate
<b>Pneumatics: Troubleshooting Pneumatic Instrument Systems</b>	As an instrument technician you're going to find yourself doing a lot of troubleshooting. By using a logical procedure, you can face each problem confidently and solve the problem logically and efficiently. This interactive online course will teach you the principles of troubleshooting and how to apply them to troubleshooting pneumatic instrument systems. You will learn how to observe, diagnose, and restore pneumatic instrument systems following troubleshooting principles. Additionally, this course will walk you through a troubleshooting example to demonstrate how to diagnose and resolve a pneumatic instrument system issue.	1	Intermediate
<b>Pneumatics: Tuning Pneumatic Control Systems</b>	When you tune a control system, you check and adjustment the instruments in the system to ensure that it operates within specified limits. The procedure's a lot like tuning an automobile engine. No two engines are the same, but if you know the engine and you use a logical tuning method, you can probably do the job. Now, in a plant, no two process control systems are exactly the same, but with the right knowledge and resources, you can tune a variety of control systems. In this interactive online course, we'll look at some of the basic principles of tuning a pneumatic control system. Then, we'll look at the process characteristics that are important in tuning, and we'll examine some common tuning methods. Afterwards, we'll see how an instrument technician tunes a control system. Most of the information that you'll learn from this course can be applied to the pneumatic control systems in your plant.	1	Intermediate
<b>Pollution Prevention Best Practices</b>	Pollution is the contamination of the environment by substances that harm plants, animals, people, or natural resources. Most people are familiar with the three major forms of pollution: air, water, and land. Polluting these natural resources has both local and global impacts. This course describes ways to identify and reduce pollution at its source.	0.5	Intermediate
<b>Portable Loading Ramps</b>	Portable loading ramps, also called portable loading docks, forklift ramps, mobile ramps, or yard ramps, provide access to semi-trailers and boxcars from ground level. They can be used in places where permanent loading docks do not exist, such as farm fields or construction sites, or as a cost effective way to expand material handling capabilities. Portability provides the flexibility to load and unload trailers close to the storage location, which can significantly reduce transportation distances in large facilities. This course will cover the basic features and safe operating guidelines for portable loading ramps.	0.25	Intermediate
<b>Positive Displacement Pump Maintenance Basics</b>	The purpose of this course is to reinforce understanding of positive displacement pumps. These pumps are used in industrial facilities to move many different types of fluids. To keep these pumps working properly, maintenance personnel need to know how they work and how to perform maintenance on them. At the completion of this course, participants will be able to identify the types and operation of positive displacement pumps, describe overhaul preparations, and perform cleaning, inspection, and assembly procedures.	1	Intermediate
<b>Positive Displacement Pumps</b>	A positive displacement pump works by capturing a given volume of liquid at the suction of the pump, and then mechanically forcing it out of the discharge at a higher pressure. In contrast to centrifugal pumps, in which the flow is affected by downstream pressure, positive displacement pumps (within the limitations of the driver) deliver a nearly constant flow, independent of the downstream pressure. Positive displacement pumps can be categorized as reciprocating or rotary action pumps. This course describes the general characteristics of positive displacement pumps and the principles of operation of various common designs.	0.5	Intermediate
<b>Post Disaster Recovery and Reconstruction</b>	Post-disaster redevelopment is essential to create (or recreate) a disaster-resilient community. In this Webcast, we will provide you with disaster recovery information. You will get strategies for economic rebound, housing recovery, health and social services, infrastructure, land use, and environmental restoration.	2	Intermediate
<b>Power BI Essentials</b>	Learn to create stunning reports with real-time data. In Microsoft's Power BI, you can connect to existing data to create modern data visualizations and reports. In this course, you will learn everything you need to know to design reports, charts, and dashboards and distribute them to your team. We will walk you through the process from install to publish.	1	Fundamental
<b>Power Boiler Basics</b>	The purpose of a power boiler is to create steam by applying heat energy to water. The steam produced by the power boiler can be transferred through piping to a number of applications throughout industrial facilities. This module describes the purpose, design, operation, and key components of a power boiler.	0.25	Intermediate
<b>Power of an Energy Audit</b>	An energy audit is often the first step in energy consumption reduction. This interactive webcast will introduce green building professionals to the importance of conducting an energy audit to assess energy use and measures to implement for energy conservation. We will discuss the four levels of analysis, including: benchmarking, walk-through audit, detailed/general energy audit, and investment-grade audit. This course will also focus on how auditing can help identify cost-saving opportunities and prioritize improvements. An energy audit is an inexpensive yet powerful way to reduce costs and improve performance. Energy audits also are an important step to help meet greenhouse gas reduction goals. Finally, we will focus on the competitive positioning of energy auditing by touting successes and attracting and engaging more customers.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Power Plant: Power Generation</b>	This course covers topics related to power generation at power plant systems, including voltage induced in an alternating current (AC) generator, generator output current, generator excitation, hydrogen cooling systems, and stator cooling systems. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Power Supplies</b>	An electronic power supply is a device, or a group of devices, that converts normal generated alternating current (AC) power into power that is suitable for electronic equipment. An electronic power supply typically includes some or all of the following types of devices: transformers, rectifiers, filters, regulators, voltage multipliers, and voltage dividers. The components of a specific power supply are directly related to the requirements of the electronic equipment being served.	1	Intermediate
<b>Power Transmission &amp; Distribution - Basic Equipment and Terminology</b>	This course covers basic information regarding the transmission and distribution of electric power, including components of transmission lines, transformers and switchgear, substations and electric power distribution systems. General information related to electric service loads is covered, as well as operational aspects and costs involved in transmitting and distributing electric power. The future of electric power transmission is also discussed, providing some thoughts on what trends may be seen in coming years. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
<b>Power Transmission and Distribution</b>	This webcast covers transmission and distribution of electric power, including components of transmission lines, transformers, switchgear, substations, and electric power distribution systems. General information related to electric service loads is covered, as well as operational aspects and costs involved in transmitting and distributing electric power.	1	Fundamental
<b>Power Up PowerPoint</b>	Giving A Presentation? If You Want To Avoid Boring Your Audience To Tears, This Course Is A Must Most Presentations Are Filled With Bullet Point Lists, Thick Paragraphs Of Text, And The Occasional Picture In A Desperate Attempt To Break Up The Monotony ... but you can do better than that! This course shows you ways to turn standard content into something that's ACTUALLY INTERESTING to your audience. Taught by presentation skills guru Kelly Vandiver and TEDx speaker Dr. Rebecca Heiss, Power Up PowerPoint will show you how to power up your next presentation!	2.75	Intermediate
<b>Powerful Presentations</b>	Audiences decide if a presentation is worth paying attention to in the first 1-2 minutes. To be an effective presenter, there are multiple factors to consider and skills to develop. In this course, through the use of application exercises and a rich multi-media process, you will learn the key skills to creating powerful presentations that get results.	0.5	Intermediate
<b>Pressure Washing Best Management Practices</b>	Pressure washing generally refers to the practice of using water sprayed through a nozzle at high pressure to clean or strip material from various surfaces. This technique typically produces contaminated wastewater that can flow into a nearby waterway without proper intervention. This course describes pressure washing best practices and steps to take to avoid polluting open water.	0.5	Intermediate
<b>Prestressed and Reinforced Concrete: Choosing the Best Method for Your Project</b>	Reinforced? Prestressed? Post-Tensioned? Some precast concrete is prestressed and reinforced, but not all reinforced concrete is prestressed. Which construction method can I perform at the job site? Which one will need to be manufactured and delivered to my project? Confused? Let's clear up the differences between prestressed and reinforced concrete and how the two can work in tandem. All concrete looks pretty much the same on the outside, but inside, concrete contains steel that has been designed using years of extensive engineering and construction experience. In this interactive, online course, we will peer inside and see what reinforcing steel and prestressing strand can do for a structure. This course will focus on reinforced concrete and stressed (pre and post) concrete. Each type will be covered in depth.	1	Intermediate
<b>Preventing Intersection Collisions - Cross Traffic</b>	Intersections are one of the most dangerous locations on any roadway. You should pay particular attention to the cross traffic as you approach the intersection. Cross traffic includes all road users that are traveling on the intersecting road and may cross or enter your path. This course will identify common contributing factors to cross traffic intersection collisions and strategies to prevent intersection collisions due to cross traffic.	0.25	Intermediate
<b>Preventing Intersection Collisions - Rear-ends</b>	More than 25 percent of all car crashes are rear-end collisions. A rear-end crash occurs when the front of one vehicle comes into contact with the rear of another vehicle. This course will describe contributing factors to rear-end crashes and identify strategies to prevent rear-ending or being rear-ended by another vehicle.	0.25	Intermediate
<b>Preventing Intersection Collisions - Turning</b>	Intersections are one of the most dangerous locations on the roadway. Research has shown that a large number of crashes every year occur in an intersection or are intersection-related. This course identifies intersection hazards and strategies to prevent crashes in intersections.	0.25	Intermediate
<b>Preventing Loss of Control Crashes</b>	Have you ever unexpectedly lost control of your vehicle while driving? Perhaps you lost control of your vehicle in inclement weather. Maybe it was raining hard and you applied the brakes suddenly, or you crossed a bridge that was covered with ice. Or, maybe you lost control because you had to suddenly steer to avoid hitting another vehicle or object. If so, you are not alone. These are all common factors that lead to loss of control events. This course will identify common loss of control crashes and then discuss ways to reduce loss of control and how to regain control.	0.25	Intermediate
<b>Preventing Mold Growth</b>	Preventing fungal growth begins with the building design and follows all the way through responding to a water intrusion event. This course will provide some basic science to help understand how mold happens. It will also provide examples of recommended building materials, their assembly, and building systems that both invite and avert mold growth.	1	Fundamental
<b>Preventing Sideswipe Collisions</b>	Have you ever noticed another vehicle drifting slowing across the lane line into your lane? Or perhaps your vehicle was the one unintentionally crossing the lane line into another lane? If so, you are not alone, this is a common sideswipe crash scenario. This course will identify potential hazards that may lead to sideswipe crashes and best practices for avoiding those hazards.	0.25	Intermediate
<b>Preventing The Spread Of Contagious Illness</b>	This new program, which includes information about seasonal flu, avian flu, SARS and MRSA in addition to swine flu, explains the origins and symptoms of these illnesses as well as the general hygiene and prevention measures required to prevent spreading and contracting all contagious illnesses. The video stresses prevention and the personal responsibility required to avoid spreading an illness or infection. Topics covered also include: Decontaminating work areas Special MRSA precautions Responding to a potential infection Medical diagnosis and treatment of contagious illnesses	0.25	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Pricing as a Professional</b>	This will not be a course in accounting. It will not rely on technical terms. It will be a common-sensical look at pricing with a keen eye to being practical and usable, using experienced-based methods. This 2-hour interactive online course provides an in-depth look at the elements of pricing that you as a contractor must consider if you are to operate on a successful professional level. Though the more prevalent common standard pricing considerations will be touched upon, the primary thrust of this course is to also consider the full panoply of pricing factors, including subjective and judgemental elements, that you must be aware of and use, if you are to be successful. This is a practical look, from an experienced contractors point of view, of often overlooked, but nevertheless important elements, that strongly influence your bottom line, and, perhaps, your ultimate success as a contractor. This course is written from the point of view of a contractor, but it contains information useful to many different professionals who deal with pricing issues. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Principles of At-Risk Construction Management</b>	What is CMAR? How should you choose the right construction manager for your project? This interactive online course will provide an overview of at-risk Construction Management (sometimes called CMAR and CM/GC). After reviewing how this system was created in the early 1980s, we will examine some of the key structural, procurement and contractual components of the process. We will also review some of the unique legal issues associated with this process (e.g., liability for value engineering, subcontractor non-performance).	1	Fundamental
<b>Principles of Design-Build</b>	This one hour course will provide an overview of design-build. It will begin with an historical perspective, and then move into the key structural, procurement and contractual components of the process. Possible major legal issues will be presented as well.	1	Fundamental
<b>Principles of Professional Construction Management</b>	What is professional construction management? What services does a professional construction manager perform? This interactive online course will provide an overview of professional construction management, including program management. It will examine the structural, procurement and contractual components of the process, as well as some of the unique legal issues that are associated with this process (e.g., liability for safety, schedule and cost overruns to trade contractors).	1	Fundamental
<b>Priority of Calls in Boundary Resolution</b>	Retracement surveyors encounter conflicting boundary evidence in the field almost every day, and it is the task of the surveyor to resolve these inconsistencies. Following in the footsteps of previous surveyors is challenging. This course teaches surveyors how the long-established priority of calls is used to weigh boundary evidence. You'll learn how certain types of evidence is considered more reliable--and legally defensible--than others. You will be presented with court decisions governing boundary resolution, and then review case studies that reflect real-world situations.	1	Intermediate
<b>Problem Solving</b>	Problem Solving is a course designed to familiarize participants with a basic process that can be used to solve almost any type of problem in the workplace. After completing this course, participants should be able to define a problem and the goal for its solution. They should then be able to work their way through the basic problem solving process. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Procedure Use and Adherence</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Procedure Use and Adherence human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Process Control Fundamentals</b>	Process control simply refers to the control of a process. The main goal of process control is to stabilize process operations in order to consistently produce the desired results, and it can be automatic or manual. In modern processing and manufacturing industries, process control is frequently implemented by automated, computer-based control systems which utilize a number of different tools. The fundamental building block of these systems is the process control loop. This module discusses open and closed loop controllers, as well as specific examples of each.	0.25	Intermediate
<b>Process Safety Management</b>	Process Safety Management is the identification, evaluation, and prevention of highly hazardous chemical releases that could occur as a result of catastrophic failures in processes, procedures, or equipment. This course covers the components of the OSHA regulation in detail.	0.5	Intermediate
<b>Process Safety Management (PSM): 1910.119 Overview and Auditing</b>	The OSHA 1910.119 Process Safety Management (PSM) regulation applies to many companies that use and process flammable liquids as well as hazardous chemicals. With 14 required elements - it's a very comprehensive and challenging regulation. The PSM regulation literally changes the way affected companies run their business. This course will show you how to develop an effective PSM Program as well as survive an OSHA PSM inspection.	1	Intermediate
<b>Process Safety Management (PSM): An Overview</b>	This overview of PSM will provide a basic understanding of what PSM is and the topics that comprise it. PSM addresses Highly Hazardous Chemicals identified by OSHA and the process industries. These chemicals require safety considerations over and above normal chemicals. These safety considerations are the basis of PSM. Following course completion you will be able to identify key elements and what is and is not acceptable under PSM.	1	Intermediate
<b>Process Safety Management (PSM): Compliance Audits</b>	Compliance audits serve as a self-evaluation for employers to measure the effectiveness of their process safety management system. Audits can identify problem areas and assist employers in directing attention to process safety management weaknesses. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of compliance audits as part of the overall process safety management program. You will also learn how to implement compliance audits into your overall process safety management program and how to evaluate compliance with process safety management compliance audit requirements.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Process Safety Management (PSM): Contractors</b>	On October 23, 1989, an explosion occurred at the Phillips Petroleum polyethylene plant in Pasadena, Texas. A massive vapor cloud was created causing 23 fatalities and over 100 injuries. Investigation into the incident revealed that a specialist maintenance contractor employed to do work on one of the reactors did not follow the proper procedures prior to maintenance work. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. Because contractors perform crucial activities on PSM covered processes, unsafe contractor work may jeopardize other employees as well as the contractors themselves. In this interactive online video course, safety expert Jon Wallace discusses the elements of the PSM Contractor requirement, including contractor selection, training, and evaluation. It is critical that contractors understand potential hazards of their work environment; therefore, a solid understanding of the PSM Contractor requirement will help ensure employers correctly train contractors on OSHA regulations.	1	Intermediate
<b>Process Safety Management (PSM): Emergency Planning &amp; Response</b>	Proper training and preplanning is an essential part of an emergency action plan and can help prevent disasters from occurring. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of emergency planning and response as part of the overall process safety management program. You will also learn about emergency planning and response requirements and how to implement emergency planning and response into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Employee Participation</b>	The Union Carbide explosions in Bhopal India, 1984 and Institute, West Virginia in 1985. The Phillips Petroleum explosion in 1989, and ARCO explosion in 1990. These are just four major incidents that led to the OSHA Process Safety Management Standards. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released. The employee participation element is a critical part of PSM that enhances overall effectiveness in areas including Process Hazard Analysis (PHA) and Incident Investigation. In this interactive online video course, learn from industry expert Jon Wallace about the employee participation component of the Process Safety Management Standards. Subjects covered include employer requirements for a written plan of action to confirm employee participation, consultation with employees regarding hazards, and employee access to process hazard analysis. Employers must follow OSHA regulations and ensure employee participation and EPA Clean Air Act Amendments are implemented in training.	0.5	Intermediate
<b>Process Safety Management (PSM): Hot Work Permits</b>	In January 2008 there was a fire at the Monte Carlo Resort and Casino in Paradise, Nevada. Welders at the time did not use fire protection mats, and the resulting fire caused 100 million dollars in damage, with thirteen people suffering from smoke inhalation and seventeen people suffering from minor injuries. This could have been prevented with an effective Project Safety Management Hot Work Permit Program. Process Safety Management (PSM) is a systematic process aimed at preventing highly hazardous chemicals from being released. The Hot Work Permit Program is one of the fundamental components of occupational safety. Hot Works is geared towards any work that produces sparks or flames, and can include welding and cutting among potential ignition sources. In this interactive online video course, safety expert Jon Wallace discusses the components of an effective Hot Work Permit program, how to implement it, and how it can prevent property damage, and loss of life. An effective Hot Works Permit Program will also help avoid OSHA violations.	1	Intermediate
<b>Process Safety Management (PSM): Incident Investigations</b>	There have been many incidents involving multiple losses of life that led to the formation of the OSHA Process Safety Management Standard. Learning from past incidents and investigating the root causes of these incidents can help us be prepared and prevent history from repeating itself. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about the importance of incident investigation as part of the process safety management program. You will also learn about incident investigation requirements, and how to implement an incident investigation program into your overall process safety management program.	1	Intermediate
<b>Process Safety Management (PSM): Management of Change</b>	Uncontrolled change contributes to 80% of serious industrial accidents. Management of Change (MOC) requires written procedures to manage changes to process chemicals, technology, equipment, facilities and procedures that affect a covered process. Any potential change is evaluated for its impact on the process and all affected personnel will be informed and trained in the change prior to start-up of the process. In addition, any change requires all other elements of PSM to be updated to reflect the change. Lack of or an ineffective Management of Change Program is a ticking time bomb that will eventually explode.	0.5	Intermediate
<b>Process Safety Management (PSM): Mechanical Integrity</b>	Mechanical Integrity (MI) rivals Process Safety Information in complexity and receives the most OSHA citations. This is because MI addresses most of the equipment in a process and is therefore very broad. MI requires written procedures to maintain the integrity of process equipment and training for process overview, hazards and employee task procedures. Typically the most important task for Mechanical Integrity is equipment inspection and testing. This course offers a working knowledge of Mechanical Integrity and its many elements.	0.5	Intermediate
<b>Process Safety Management (PSM): Operating Procedures</b>	Methyl isocyanide, aldibar oxime, anhydrous ammonia. These are just three examples of highly toxic chemicals that have been released into the atmosphere as a result of chemical plant explosions in recent years. Exposure to highly hazardous chemicals can be fatal; therefore, Process Safety Management (PSM) was designed to help prevent such chemicals from being released. PSM outlines steps for the management of hazards associated with processes using highly hazardous chemicals. Because most PSM covered processes are complex operations, the need for clear operating procedures is critical in order to maintain a safe and healthy work environment. In this interactive online video course, industry expert Jon Wallace discusses the required elements for operating procedures, including steps for each operating phase, operating limits, and safety and health considerations. A solid understanding of this information will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
<b>Process Safety Management (PSM): Pre-Startup Safety Review</b>	On August 28, 2008, an explosion at the Bayer CropScience plant in Charleston, West Virginia killed two workers and injured eight others. The ignition of a five-thousand pound chemical vat occurred during the restart of the methomyl unit after upgrades were performed on the system. Incident investigation revealed several causes, including inadequate pre-startup safety review, and inadequate operator training on the new system. This is an example of the importance of Process Safety Management (PSM). PSM is aimed at preventing highly hazardous chemicals from being released, and startup and shutdown are potentially the two most dangerous times for a PSM process. In this interactive online video course, safety expert Jon Wallace discusses the components of the PSM Pre-Startup Safety Review. The purpose of this review is to ensure safe operation of a PSM covered process by identifying and correcting unsafe conditions prior to process operation.	1	Intermediate
<b>Process Safety Management (PSM): Process Hazard Analysis</b>	Process Hazards Analysis (PHA) is best described as the building block for the successful PSM program. This course provides an overview of Process Hazards Analysis, acceptable methodologies and information required for PHAs. PHAs identify, evaluate, and control the hazards involved in the process. Priority of PHAs is determined by such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. This course is an introduction to PHAs and does teach how to conduct a Process Hazards Analysis.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
Process Safety Management (PSM): Process Safety Information	Process Safety Information (PSI) identifies the many types of information necessary to convey an understanding of a PSM covered process. Process Safety Information is typically grouped into three topics: hazards, technology and equipment. The hazards of the process must be communicated to employees. The process technology of designing safe systems, safety components and devices help employees understand the safety built into the process. The key point of Process Safety Information is not to remember it, but to know where to find the information if needed.	0.5	Intermediate
Process Safety Management (PSM): Trade Secrets	There are companies that have millions of dollars in trade secrets and making that information accessible to competitors or the general public can have a significant effect on their competitive advantage. In this interactive online video course, you will learn from industry expert Jon Wallace (25 year safety veteran) about trade secret requirements outlined in the process safety management standard. You will also learn about your company's rights and responsibilities with respect to company trade secrets and OSHA's rights and responsibilities to access trade secret information.	0.5	Intermediate
Process Safety Management (PSM): Training	On January 31, 2006, an explosion caused by a runaway chemical reaction rocked the Synthron facility in Morganton, North Carolina. One worker was fatally burned, and 14 others were injured (two seriously). The explosion destroyed the facility and damaged structures in the nearby community. Incident investigation revealed that Synthron had minimal safety information on its chemical processes, and personnel were poorly prepared to recognize dangers from an uncontrolled chemical reaction. Process Safety Management (PSM) is aimed at preventing highly hazardous chemicals from being released, and effective training is needed to ensure the safe operation of oftentimes complex operations. In this interactive online video course, industry expert Jon Wallace discusses the elements of the PSM Training requirement, including initial training, refresher training, and training documentation. A solid understanding of the details of this requirement will help ensure employers are in compliance with OSHA PSM regulations.	1	Intermediate
Project Management Essentials	Are you a successful project manager? Do you know the criteria to prove it? This interactive online Project Management Essentials course provides you an in-depth look at the critical skills and capabilities for Project Management success. We begin by delving into the evolution and history of modern Project Management and how the foundation was established for today's key project elements and life cycle phases. We include the human element of Project Management and how to plan, manage, and control the project and resources to exceed customer expectations.	2	Fundamental
Project Risk Management	This 2-hour interactive online course introduces the concept and principles of project risk management - risk identification, risk quantification, risk response development and risk control. It is prepared specifically for architects, engineers and contractors. Many real-life examples are provided to demonstrate the process and importance of risk identification and quantification - the most important steps of risk management. There is a multiple-choice quiz included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Project Team Management	This 1-hour online course introduces the concept and principles of project team management - the concept of team, conflict resolution, team building cycle and management's roles. It is prepared specifically for architects, engineers and contractors. Team-building is one of the key elements for the high productivity of any organization. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Property Management Safety - Employee Slips and Falls	Property management company employees work in many types of varied environments. Inside, outside, rain, snow, and wet floors are just a few of the many slip hazards they face. This training program is designed to promote awareness of slips and falls from a property management perspective. It trains your employees on various potential hazards, the importance of proper maintenance and cleaning procedures, and many other aspects of slip and fall prevention. This DVD contains both English and Spanish versions.	0.15	Fundamental
Property Management Safety - Fire Prevention	Few things can be more terrifying and catastrophic than a fire, especially in a multi-unit property environment. That is why training and education is so important. This video program trains your employees on ways fires can be prevented, conditions that contribute to fires and the steps employees can take to minimize the risk of a potential fire in a unit. This DVD contains both English and Spanish versions.	0.1	Fundamental
Property Management Safety - Personal Protective Equipment	During their workday, property management maintenance personnel can face many different types of safety situations. As such, it is important that they be properly trained on what Personal Protective Equipment is required and how to use it. Personal Protective Equipment is often overlooked. Failure to utilize the correct PPE can have disastrous, life-changing results. This video emphasizes to your employees the importance of making sure they have and use the proper PPE in a multi-unit complex environment. This DVD contains both English and Spanish versions.	0.1	Fundamental
Property Management Safety - Resident Safety	In every property management environment, nothing is more important than the safety of your residents. There are many hazards that can exist when you have a large number of people living close to each other. Fire prevention, cleanliness and maintenance are just a few of the subjects covered in this production training program. This video highlights trains your employees on the key issues relating to safety in regards to new residents. This DVD contains both English and Spanish versions.	0.1	Fundamental
Property Management Safety - Resident Slips and Falls	When a resident in a multi-unit property injures themselves through a slip or fall, the potential liability exposure to management is great. All property management employees must be aware of this and what their responsibilities are to keep slip and fall hazards to a minimum. With a focus on exterior and weather related hazards, this training program is designed to train your employees on what types of hazards to look for and how they should be corrected. This DVD contains both English and Spanish versions.	0.1	Fundamental
Protecting and Restoring Habitat in Urban Ecosystems	Ecosystems provide humanity with the products and services needed to sustain a high quality of life on this planet. Unfortunately, urban development and mechanical disturbance destroy or damage over 400 square miles of ecosystems every year in the United States alone (Johnson, Brown, Loveland, & Theobald, 2005). However, with thoughtful preservation and restoration, living systems can be integrated into our built environments and can continue to provide services such as clean air, clean water, climate regulation, wildlife habitat, and improved human health and well-being. This interactive online course will help you understand how the design and management of habitat in urban areas affects the services it provides to the community. It will discuss the processes that drive the development of ecosystems and how these processes can be used to restore and manage nature in urban settings. The course will cover strategies for habitat mitigation. It will also discuss the components of restoration and Integrated Pest Management plans. Lastly, the course will describe strategies for achieving community understanding and support for urban habitat conservation.	3	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Protecting People Against Terrorist Attacks: Chemical, Biological, and Radiological (CBR) Threat Protection</b>	As contaminated air infiltrates a safe room, the level of protection to the occupants diminishes which can result in injury or death. This interactive online course teaches you how to add CBR protection capability to a shelter or safe room. You will learn about the design of shelters and how they are used to protect against chemical, biological, and radiological, and explosive (CBRE) attacks. Fallout shelters that are designed to protect against the effects of a nuclear weapon attack are not addressed in this course. This course will guide you through the process of designing a shelter to protect against CBRE attacks. The intent of this course is not to mandate the construction of shelters for CBRE events, but rather to provide design guidance for professionals who wish to design and build such shelters.	1	Intermediate
<b>Protecting People Against Terrorist Attacks: Design Considerations for Safe Rooms and Shelters</b>	The fact that data for manmade threats are scarce and that the magnitude and recurrence of terrorist attacks are unpredictable makes the determination of a particular threat for any specific site or building difficult and largely subjective. This interactive online course teaches you about potential manmade threats and design considerations for shelters. You will learn about explosive threats and chemical, biological, and radiological (CBR) attacks and the level of protection needed for shelters to protect people against terrorist attacks.	1	Fundamental
<b>Protecting People Against Terrorist Attacks: Structural Design Criteria</b>	There is no way to effectively know the size of an explosive threat. Different types of explosive materials are classified as High Energy and Low Energy and these different classifications greatly influence the damage potential of a detonation. This interactive online course will teach you about explosive threat parameters and measures needed to protect shelters from blast effects. You will learn about structural systems and building envelope elements for new and existing shelters. You will also learn about protective design measures for the defined building types and design guidance and retrofit issues. The purpose of this course is to offer comprehensive information on how to improve the resistance of shelters when exposed to blast events.	2	Intermediate
<b>Protecting Water Systems Through Backflow Prevention</b>	Property owners may turn to Registered Architects or Professional Engineers to determine whether or not a property requires a backflow prevention device. According to the EPA there are approximately 155,000 public water systems in the United States. It is the responsibility of these public water utilities to provide safe drinking water to over 90 percent of the United States. Water main breaks and fire fighting efforts among other events can cause a condition called backsiphonage or backflow. This creates a condition where non-potable water from a building can contaminate the public water supply system. Anyone associated with the design, construction, maintenance of water systems needs to be aware of the potential for backflow and understand how to prevent it. In this interactive, online course, we will discuss the difference between back pressure and back siphoning, and the conditions where each occur. We will learn how to select the appropriate backflow device given the potential hazard and describe how backflow devices operate. Upon completing this course you will be able to recognize examples of potential backflow situations and how to prevent backsiphonage and/or backpressure. You will also be able to differentiate types of backflow preventers and the importance of regular testing and maintenance.	1	Intermediate
<b>Protecting Your Communications System from Transients and Surges</b>	Lightning and power surges cause millions of dollars in damage each year. In this webcast you will learn how to use surge protection and proper grounding methods to improve reliability of communications network and reduce damage to equipment.	1	Intermediate
<b>Protecting Your Team Against Workplace Violence</b>	Workplace violence can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide, one of the leading causes of job-related deaths. It can occur at any time and be perpetrated by anyone you may come in contact with at work. However it manifests itself, workplace violence is a growing concern for employers and employees nationwide. This interactive, online course will present the factors that contribute to violence in the workplace and how to spot problem behavior and prevent violent incidents.	1	Fundamental
<b>Protection Against Malware</b>	Malware is a primary means of attack for cyber-perpetrators. This course provides staff members with an overview of basic protection against malware. Topics include: the types of malware, how malware works and protective strategies	0.25	Fundamental
<b>Providing Performance Feedback: 01-The Power of Performance Feedback</b>	Discover when to give performance feedback to team members and what sources to use for information.	1	Intermediate
<b>Providing Performance Feedback: 02-Providing Verbal Performance Feedback</b>	Practice providing verbal performance feedback to team members using key concepts in the course.	1	Intermediate
<b>Providing Performance Feedback: 03-Providing Written Performance Feedback</b>	Learn how to provide effective feedback in writing to empower team members.	1	Intermediate
<b>Providing Performance Feedback: 04-Your Path to Providing Performance Feedback</b>	Learn and apply the five-step process for providing timely performance feedback to a team member.	1	Intermediate
<b>Providing Performance Feedback: 05-Mastering Providing Performance Feedback</b>	Practice Providing Performance Feedback in a full scenario situation.	1	Intermediate

# AEC Complete

Title	Description	Hours	Level
Providing Performance Feedback: 06-Providing Performance Feedback Health Check	Test your ability to apply Providing Performance Feedback concepts in this skills-based scenario assessment.	1	Intermediate
Pump Types and Applications	Pumps are used to add energy to fluids (gases, liquids, or slurries) in order to produce flow or increase pressure. They can perform many different functions, including moving a fluid from one location to another, recirculating a fluid in a closed system, such as in a heating or cooling system, and providing pressure, such as in hydraulic systems. These functions are performed primarily by two different types of pumps: centrifugal and positive displacement. This module describes the most common types of pumps and their applications.	0.25	Intermediate
Pumping Stations - Pumps, Motors and Electrical Systems	Pumping stations are necessary where large amounts of water must be transported through a piped distribution system. Knowing the characteristics of piping and valve materials will allow you to optimize the hydraulic design of your pumping stations. This interactive online course will teach you about the different water distribution station pump classifications. You will also learn about pump designs and motor types. Additionally, you will learn about the electrical systems of pumping stations.	2	Fundamental
Pumps Introduction	Pumps are essential to virtually all industrial processes and they play critical roles in our everyday lives. Understanding the basics of fluid mechanics and the operation of different types of pumps is an essential step toward being able to understand, troubleshoot and improve a wide variety of processes. This course includes a brief overview of fluid mechanics as well as the differences between centrifugal and positive displacement pumps, including their operational characteristics and applications.	0.25	Intermediate
Pumps: Fundamentals of Centrifugal Types	This course is designed to introduce participants to the fundamental operating principles of single-stage and multistage centrifugal pumps. After completing this course, participants should be able to describe the general operating principles of a centrifugal pump. Specifically, they should be able to describe the differences between radial, axial, and mixed flow pumps; describe the basic operation of a vertically mounted pump; and describe the basic operation of a multistage pump. Participants should also be able to describe various types of impellers used in centrifugal pumps and to describe the purpose and the basic operation of a mechanical seal flush system.	2	Intermediate
Pumps: Multistage Centrifugal	This course is designed to familiarize participants with the basic operation, disassembly, and reassembly of a typical multistage centrifugal pump. After completing this course, participants should be able to describe the components and operation of a multistage centrifugal pump and explain how this kind of pump can be disassembled and reassembled when necessary.	2	Intermediate
Pumps: Operation of Centrifugal Types	This course is designed to familiarize participants with the basic operation of centrifugal pumps. After completing this course, participants should be able to describe techniques for priming a centrifugal pump and explain general procedures for starting and shutting down a pump. They should also be able to describe some general checks that may be made on an operating pump and describe operator concerns related to air binding and vapor binding in a centrifugal pump.	2	Intermediate
Pumps: Performance and Inspection	This course is designed to introduce participants to factors that affect the performance of pumps and some of the symptoms of improper pump operation. After completing this course, participants should be able to identify and explain the relationship between various factors that affect pump performance, and they should be able to explain how pump performance can be evaluated. They should also be able to identify symptoms of some common pump problems and explain how to check a pump for signs of problems such as leaks and cavitations.	2	Intermediate
Pumps: Reciprocating Positive Displacement Types	This course is designed to familiarize participants with the basic parts and operation of several types of reciprocating positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: single-acting piston pumps, single-acting plunger pumps, double-acting piston pumps, duplex piston pumps, motor-driven diaphragm pumps, and air-operated diaphragm pumps. Participants should also be able to describe a general procedure for starting up and shutting down a typical reciprocating pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
Pumps: Rotary Positive Displacement Types	This course is designed to familiarize participants with the basic parts and operation of several types of rotary positive displacement pumps. After completing this course, participants should be able to describe the general operation of the following types of pumps: screw pumps, gear pumps, lobe pumps, vane pumps, and tubing pumps. They should also be able to describe a general procedure for starting up and shutting down a typical rotary pump, and they should be able to explain the function and operation of a relief valve.	2	Intermediate
PVC Pipe - Which type should I use?	Poly vinyl chloride (PVC) pipe is used for many applications, including water lines, sewer lines, irrigation, and storm drainage. There are many different types and classes of PVC pipe, made for many different applications. There are many more similarities in PVC than there are differences, but it is important for engineers and architects that use these products to understand the differences. This 1-hour interactive online course is intended to shine some light on the use of products such as SDR 35, C 900 and Schedule 40 pipe. This course is not intended to be an endorsement of PVC for all applications but rather to provide the student with better information upon which to base a design decision. Some of the tables used in this course must be displayed using Microsoft Word. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Advanced
R & D Chemical Hygiene	Significant injuries, damage to facilities and disruption of work can occur when chemicals are not properly stored and handled. By the end of this course, you will learn about the hazards of working with chemicals in a Research and Development Laboratory.	1	Intermediate
R & D Waste Management	This course is structured to provide a general overview of waste streams that can be generated in a research and development (R & D) laboratory. Information is also provided concerning the federal regulatory agencies that oversee chemical waste in a research laboratory setting and applicable guidance from those agencies. In this interactive online course, you will learn that no matter how big or small your research laboratory, you should have a chemical hygiene plan in place to protect all laboratory personnel while they collect and handle hazardous wastes. The handling of hazardous wastes can present a physical and health hazard to laboratory workers in clinical, industrial and academic laboratories. This course will provide guidance on good work practices in the handling of the various wastes streams generated in a R & D laboratory.	1	Intermediate
Raceways	This course is designed to familiarize participants with various types of raceways used to house electrical wiring. After completing this course, participants should be able to describe various types of raceways, including conduit, wireways, and cable trays. They should also be able to describe procedures for installing raceways in various types of environments.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
Radiation Safety	The myths surrounding radiation exposure may be great for a Hollywood screenplay, but they won't help you work safely around radiation at your facility. Use this radiation safety course to learn about ionizing and non-ionizing radiation, gamma rays, isotope encapsulation, radiation-based sensor usage, radiation strength, and exposure minimization. We're sure you'll find our radiation course a valuable asset to your safety program!	0.25	Intermediate
Radiofrequency (RF) Radiation Hazard Prevention	Radiofrequency (RF) radiation is the transmission of energy by electromagnetic radio waves or microwaves. You can't see it, smell it, hear it, or touch it, but the more you know about RF radiation, the better you will be at managing operations that produce it, and reducing the risks associated with it. Low levels of exposure to RF radiation have not been shown to be harmful, but prolonged exposure to very high levels of RF radiation can burn human tissue. No links have been proven between exposure to RF radiation and more severe health effects, like cancer or reproductive defects. Telecommunication and radar transmitters can produce high-intensity RF radiation environments that are potentially hazardous to anyone operating and maintaining this equipment. This course is designed to provide a general overview and understanding of the hazards associated with radiofrequency radiation.	0.66	Intermediate
RCRA - Emergencies, Inspections, and Training	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. The goal of the emergency preparedness and prevention standards is to minimize the potential of a hazardous waste release and the resulting affects to human health and the environment. This course covers the required equipment needed for emergency preparedness, contingency plans, emergency procedures, inspection requirements, frequency, and logs, as well as personal training requirements and documentation.	0.5	Intermediate
RCRA - Generator, Container, and Tank Requirements	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. This course covers the classifications of generators and their regulatory requirements, waste minimization, container management requirements, hazardous waste tanks, and air emission standards and controls.	0.5	Intermediate
RCRA - Introduction	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage both hazardous and non-hazardous wastes to protect human health and the environment. RCRA subtitle C regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. This course covers hazardous waste identification, hazardous waste lists, codes, and characteristics, and the mixture rule.	0.5	Intermediate
RCRA - Preparing for Transportation, Manifesting, and LDR	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Generators (anyone that generates a hazardous waste) represent the first step in the management of hazardous waste. Once a generator has accumulated hazardous waste, it needs to be treated and disposed of. This often requires transporting the waste off-site to a treatment or disposal facility. A hazardous waste generator's responsibility is to correctly classify, package, and label the hazardous waste so it can be easily identified and appropriately handled by the transporter, and delivered to the treatment, storage, or disposal facility (TSDF). This course covers preparation steps for transportation, hazardous waste training requirements, hazardous waste manifest, land disposal restrictions (LDR), and alternative treatment standards.	0.5	Intermediate
RCRA - Special Wastes and Other Requirements	The Resource Conservation and Recovery Act (RCRA) was passed by congress in 1976 to manage hazardous wastes. RCRA regulations apply to any company that generates, transports, treats, stores, or disposes of hazardous waste. Some hazardous wastes can be safely recycled. Recycling is an excellent way to manage hazardous waste if it can be done legitimately because recycling can avoid environmental hazards and protect natural resources. Most hazardous waste that is recycled is still subject to the full hazardous waste regulations, but some materials are exempt or subject to special regulations. Recycling facilities are not subject to hazardous waste regulations except when storing in containers or tanks prior to recycling. Recycled materials fall into a special category of waste. The regulations for recycling hazardous waste depend on the material and the recycling process.	0.5	Intermediate
Reading Electrical Diagrams, Part 1	Electrical diagrams are drawings in which lines, symbols, and letter and number combinations are used to represent electrical circuits. In some plants, electrical diagrams may also be called prints, or blueprints. No matter what they are called, however, these drawings are valuable tools for anyone involved in making new electrical installations, locating electrical problems, or modifying existing circuits. There are many different types of electrical diagrams. Each type is drawn differently to provide different information. The four types of electrical diagrams covered in this course are block diagrams, single-line diagrams, schematic diagrams, and wiring diagrams.	1	Intermediate
Reading Electrical Diagrams, Part 2	A great deal of electrical maintenance work depends on the ability of maintenance electricians to read and understand electrical diagrams. This course focuses on connection diagrams, interconnection diagrams, raceway diagrams, and logic diagrams.	1	Intermediate
Reciprocating Compressors, Part 1	The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor.	1	Intermediate
Reciprocating Compressors, Part 2	The purpose of this course is to provide participants with an overview of reciprocating compressors and explain how compressed air is used to power and control many vital pieces of equipment in industrial facilities. At the completion of this course, participants will be able to describe compressor operation and maintenance tasks as well as procedures for disassembling a reciprocating compressor, cleaning and inspecting the compressor's parts, and reassembling the compressor.	1	Intermediate
Reducing Risk: Preparing to be an Expert Witness in a Deposition and Trial	In the litigious atmosphere of today, professionals are often asked to be expert witnesses in civil suits, or to simply provide services for mediations and forensic investigations. In this interactive online course, you will learn what to expect when asked to participate in legal processes or forensic investigations, how to prepare, and how to minimize your business' exposure to possible legal actions. We will discuss ethical conduct and the role of the expert witness as a non-advocate. We'll explore what is expected behavior throughout the process, how to handle oneself under pressure, and how to prepare for mediations, deposition and trial. Additionally, this course will outline how to conduct yourself as an expert witness during depositions and trials representing yourself as a competent witness who is in control, reputable, believable, and most of all, an unbiased knowledgeable witness.	1	Fundamental
Refrigeration - Compressors, Valves and Piping	The compressor is the element that represents the heart of the refrigerant circuit. Its purpose is to create, maintain and control the flow of refrigerant inside the refrigeration circuit, drawing in gas refrigerant at low pressure and low temperature, and delivering it at a higher pressure and temperature.	0.5	Intermediate



## AEC Complete

Title	Description	Hours	Level
Refrigeration - Refrigerant Properties	Care must be taken to insure compatibility among refrigerants, oils, and system components. This course will discuss refrigerant safety, types of refrigerant, and how refrigerant is used.	0.5	Intermediate
Refrigeration - Refrigerant Selection	Copper tubing is generally used for plumbing, heating, and refrigeration systems. It has good thermal transfer characteristics, is easily bent and fabricated, is harder than aluminum, and is easier to join than aluminum. This course will discuss the piping and valves used in refrigeration systems.	0.25	Intermediate
Refrigeration - System Components	There are four main components in a mechanical refrigeration system: the compressor, condenser, liquid refrigerant, and evaporator. This course will discuss each of these components and their purposes.	0.25	Intermediate
Refrigeration - System Troubleshooting	Troubleshooting of any type of refrigeration unit depends, in part, on your ability to compare normal operation with that obtained from the unit being operated. Obviously for you to detect these abnormal operations, you must first know what normal operation is. This course will cover common issues in refrigeration systems and how to perform routine maintenance.	0.25	Intermediate
Refrigeration - Vapor-Compression Cycle	The ideal refrigeration cycle involves several stages. This course will discuss each of these stages and the equipment that is involved in each stage.	0.25	Intermediate
Rehabilitation of Water Distribution Systems: Current Technologies	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the most current technologies to rehabilitate water distribution systems. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to identify technologies that are used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced
Rehabilitation of Water Distribution Systems: Designing Renewal Projects	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through some of the key technical guidelines and standards for designing rehabilitation projects within the U.S. Some of these guidelines include AWWA, ANSI, ASTM and ASME standards. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to determine applicable design and QA/QC guidelines for common water distribution rehabilitation methods.	1	Advanced
Rehabilitation of Water Distribution Systems: Selecting Rehab Methods	The average age of water distribution systems within the U.S. is between 50 to 100 years. This is right at the design life cycle of many systems, thus local water agencies are investing more and more in the rehabilitation of existing water distribution systems instead of the construction of new systems. This interactive online course will go through the overall items that need to be considered when selecting a method to rehabilitate a water distribution system. At the end of this course Contractors, Engineers, Water System Operators and Architects will be able to select applicable technologies to be used to repair, rehabilitate and replace aging water distribution systems.	1	Advanced
Reinforced Concrete Tilt-Up Panels	The term tilt-up panel is almost self-descriptive. This method of construction has been utilized through history, but only relatively recently have the advantages become economically viable. A combination of labor savings, speed of construction, and good finish quality, has made tilt-up panels more competitive. The following course will explain the tilt-up panel method of construction, itemize some of the current advantages of this construction method, and give an example of the design of a typical warehouse type building constructed of tilt-up walls.	1	Intermediate
Reinforced Masonry Design	What is reinforced masonry? Reinforced masonry is often used for building foundations and exterior walls, for resistance to earthquake and wind loads, and where compressive resistance to loads is required. Where unreinforced masonry has some limited uses, reinforced masonry can be used in most building applications under most loading conditions. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This interactive online course will focus on reinforced masonry design and how the use of this design method is employed everyday for buildings, foundations, and retaining walls. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
Reliability Engineering Essentials	This course is intended to present the essentials of reliability and a practical approach to its calculation and improvement. Participants will be able to apply basic concepts related to reliability to work on system improvements, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but also other related measurements and systems configurations, as they are found in the real world.	1	Intermediate
Reliability Essentials for Operators and Technicians	This course is intended to present the essentials of Reliability. Operators and technicians will be able to apply basic concepts related to reliability to work on system improvement, calculate maintenance (preventive and predictive), and define warranty periods. We will be looking not only at the definition of reliability, but simple probability solutions, as they are found in the real world.	0.75	Intermediate
Report Writing for Home Inspectors	Report writing is an essential element of the home inspection process and it is important that these reports accurately communicate the findings of a home inspection. A well-written report will result in satisfied customers, more referrals, and most importantly, will help keep the inspector out of court and ward off any potential lawsuits. This course will teach home inspectors how to effectively write and communicate the findings of a home inspection in a written report. This course will help the home inspector in choosing the best report writing format, key words to use in the report, and how to protect the inspector from possible legal action.	1	Fundamental
Residential Green Building: Design, Construction, and Accreditation	Green Building is rapidly becoming mainstream, mostly due to increasing environmental concerns, a desire to develop healthier structures, and increasing regulation from the permitting authorities. This 4-hour interactive online course starts by debunking many green building myths and then moves into a comprehensive discussion of its elements. The course takes a close look at green building in relation to many aspects of design and construction including issues dealing with sites, landscaping, foundations, frames, exterior finishes, plumbing, appliances, insulation, ventilation, windows, finishes, and flooring. The course wraps up with information on testing, certification, and accreditation, including a look at the LEED program and the NAHB Green Home Certification Program.ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Residential Green Remodeling: Design, Construction, and Certification</b>	This course will introduce residential construction professionals to green building and renovation strategies, practices, and materials. In addition to its positive environmental impacts, green building ultimately results in a healthier and a more affordable home for clients. If a program is implemented effectively, it's also good for the residential remodeler's financial bottom line. The green building and remodeling market continues to grow, providing great opportunities for building professionals to develop and expand their businesses. This course provides a comprehensive discussion of the unique aspects of green remodeling with a focus on building evaluation, deconstruction, handling of hazardous waste, materials recycling and reuse, energy conservation, indoor air quality, use of environmentally safe products, design principles, system planning and construction best practices. The course also provides an overview of green building certification programs, green building professional accreditation programs, and incentives available from government agencies and utilities. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 4 hours of credit toward the required continuing education.	4	Fundamental
<b>Residential Safety Essentials</b>	As you may or may not know, the top four causes of construction fatalities are Falls, Struck-By, Caught-in/between and Electrocutions. These hazards are ever present in the residential home building process and you are not exempt from these many dangers. This interactive online course will cover various safety topics and will explore how the lack of adherence to these standards are risk factors to the top four construction hazards. Please note that this course is for the express purpose of training workers on residential construction sites only.	1	Fundamental
<b>Resistors</b>	This course introduces participants to the function and atomic makeup of resistors, common materials used to construct resistors, and the typical styles used in everyday applications. In addition, participants will learn about three ways to rate resistors as well as the different ways to mark resistors.	1	Intermediate
<b>Resolving Conflicts: 01 - Characterizing Conflict</b>	Discover the four stages of conflict and the impact that unresolved conflict can have on an organization.	0.25	Intermediate
<b>Resolving Conflicts: 02-Know Your Conflict Behavior</b>	Establish a collaborative conflict resolution process to encourage team member collaboration in conflict situations.	1	Intermediate
<b>Resolving Conflicts: 03-Identifying Conflict Behaviors</b>	Identify the conflict behavior exhibited in order to properly handle the conflict.	1	Intermediate
<b>Resolving Conflicts: 04-Your Path to Resolving Conflicts</b>	Learn and apply the five-step process for resolving a conflict between two or more team members.	1	Intermediate
<b>Resolving Conflicts: 05-Mastering Resolving Conflicts</b>	Practice Resolving Conflicts in a full scenario situation.	1	Intermediate
<b>Resolving Conflicts: 06-Resolving Conflicts Health Check</b>	Test your ability to apply Resolving Conflicts concepts in this skills-based scenario assessment.	1	Intermediate
<b>Respirator Basics</b>	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.47	Intermediate
<b>Respirator Medical Evaluation and Fit Testing</b>	Before workers wear a respirator on the job, they must undergo a medical evaluation to see if they can wear the particular type of respirator safely. The medical evaluation looks for medical issues that might create a problem for the worker. In addition, after the medical evaluation, the worker should undergo a fit test to make sure the respirator fits properly and creates a tight seal. This course explains the medical evaluation and fit test in more detail.	0.4	Intermediate
<b>Respirators - Voluntary Use</b>	A respirator is a piece of personal protective equipment (PPE) that protects its user from inhaling hazardous substances in the form of dusts, mists, fumes, gases, or vapors. There are many different types of respirators; each type protects its user from a specific airborne hazard. Voluntary use situations occur when workers use respirators even when they are not required. When employers allow the voluntary use of respirators, there are several requirements they must fulfill.	0.25	Intermediate
<b>Respiratory Protection for Canada</b>	Respirators are important and commonly used in the workplace. This course explains what a respirator is and the types of hazards for which they can provide protection. It also explains the difference between air-supplying and air-purifying respirators as well as tight-fitting and loose-fitting respirators. The use of respirators within the hierarchy of controls is covered, as are assigned protection factor (APF), selection criteria, and cleaning, maintaining, inspecting, and storing procedures. Finally, training and personal responsibility are covered.	0.5	Intermediate
<b>Retaining Wall Design - Part 1</b>	This 2-hour online course is part 1 of a two part course for analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 involves the description of retaining walls, a review of the soil mechanics necessary to calculate the forces acting on the wall, and resisting the movement of this structure. Further, this course describes the procedure for evaluating the stability of the retaining wall. The body of this course is presented in a word document format which you must download. This course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
Retaining Wall Design - Part 2	This 2-hour online course is part 2 of a two part series on analyzing and designing cantilever type retaining wall structures. The purpose of these walls is to hold back or support soil banks, and other storage materials such as coal, gravel, etc. at a higher elevation on one side of the wall than the other side. Part 1 described the process of determining the stability of this type of structure, while this part is involved with determining the internal forces and stresses of the cantilever retaining structure and selecting sizes and spacing of steel reinforcing and dimensions of a reinforced concrete cantilever retaining wall. Appropriate sections and equations of the American Concrete Institute's ACI318 (latest edition) will be referenced in the design process. Due to the extensive amount of math used in this course, it is presented in a Word document format which must be downloaded by the student. There is a test at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Rewarding Peak Performers	Successful companies are built upon good ideas, and the people who turn those ideas into products and processes. In order for those companies to remain successful, they must make sure that they retain the people who helped them rise to the top of their industry. Rewarding Peak Performers gives managers the tools they need to not only keep their own talented people, but to reach out and find others who can add to the business bottom line.	1.5	Intermediate
Rigging, Part 1	The purpose of this course is to teach the fundamentals of overhead rigging. The topics covered include three basic elements of safe rigging, rope, knots and knot tying, use of a handline, and use of block and tackle. The course also introduces approaches to performing some basic rigging tasks. At the conclusion of this course, participants should have a basic understanding of how to plan a rigging job, how to inspect the equipment used on a job, how to tie basic knots commonly used in rigging, how to hang and use a handline, and how to hang and use a block and tackle. Participants should also be able to calculate the mechanical advantage of a block and tackle and identify the basic parts of a rope. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Rigging, Part 2	The purpose of this course is to teach rigging skills required for tasks often performed in line work. The course demonstrates how to rig to lift a conductor and how to rig to take the strain from a conductor at a dead end. Rigging to lift and move a piece of equipment and the use of a gin pole are also demonstrated. Safety is emphasized throughout the course. At the conclusion of this course, participants should have a basic understanding of how to rig to lift a conductor, how to rig to take strain at a dead end, how to lift and move a load, and how to use a gin pole. They should understand how to maintain safe working clearances around energized lines and how to avoid overloading rigging equipment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Rigging: Basic Lifting	This course is designed to familiarize participants with the proper use of devices designed to lift and move loads. After completing this course, participants should be able to describe how to use a simple block and tackle, a compound block and tackle, a hoist, a jack, a winch, a turnbuckle, and a load leveler. They should also be able to describe the effects of sling angles and hitch patterns on a slings lifting ability.	2	Intermediate
Rigging: Ladders and Scaffolds	This course is designed to familiarize participants with various types of ladders and scaffolds that enable personnel to work at elevated heights. After completing this course, participants should be able to describe how to select the proper ladder for a job and then use the ladder safely. They should also be able to describe general safety precautions associated with using scaffolds and the basic operation and use of various types of fixed scaffolds and powered scaffolds.	2	Intermediate
Riprap Design	This 3-hour interactive online course provides procedures for the design of riprap revetments to be used as channel bank protection and channel linings on larger streams and rivers (i.e., having design discharges generally greater than 50 cfs). Procedures are also presented for riprap protection at bridge piers and abutments. The emphasis in this course is on the design of rock riprap revetments. Other portions of the course cover the recognition of erosion potential, and erosion mechanisms, and riprap failure modes. It includes several design examples of use of the procedures. The course is based on current guidance from the Federal Highway Administration. It will be necessary to download the pdf file from the FHWA website to view some of the figures and charts referenced in this course, and to view the photographs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Advanced
Rivers vs. Lozeau - A Dave Gibson Public Lands - Related Case	This 2 hour online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for PUBLIC LANDS-RELATED parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the larger 6 hour course titled 'Dave Gibson's All Star Public Lands-Related Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Rolling Contact Bearings, Part 1	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings.	1	Intermediate
Rolling Contact Bearings, Part 2	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of rolling contact bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with rolling contact bearings.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Roofing - Flexible Membrane Edge Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading and the most critical area for wind loading is the edge of the roofing system. This 2-hour interactive online course provides a design guide for edge systems used with low sloped flexible membrane roofing systems. Another RedVector.com course is available on materials used for flexible membrane roofing and additional courses are available on other design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Roofing - Flexible Membrane Wind Load Design</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. One of the important design considerations for a roof is the wind loading. This 2-hour interactive online course provides a design guide for low sloped flexible membrane roofing systems. It also includes several design examples that go through the entire design process for wind loading. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Roofing Materials - Asphalt Shingles</b>	One of the most commonly used materials available for roofs is asphalt shingles. This 2-hour interactive online course covers a variety of topics related to asphalt shingles, such as underlayment requirements, ventilation and potential problems with shingles. Asphalt shingles are very common on residential roofs in much of the United States and are also used on smaller commercial buildings. Because they are so common, proper use, specification and design of asphalt shingle roofs are often overlooked. This course will provide guidance for designers of new asphalt shingle roofs and some guidance on replacement requirements for existing roofs. There is a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Concrete Tiles</b>	Concrete tile is one of the most durable roofing materials available. This 2-hour interactive online course covers a variety of topics related to concrete tile roofs, such as underlayment requirements, valley metals and fasteners. It also covers some of the advantages of tile roofs including thermal advantages, seismic advantages and resistance to hail. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Roofing Materials - Flexible Membranes</b>	Flexible membrane roofing materials are one of the more common types of roofing materials and probably the most common type for commercial structures. The materials used for membrane roofs include thermoset materials, thermoplastic materials and modified bitumen materials. This 3-hour interactive online course covers an introduction into these materials and products used with them, including fasteners, insulation materials, adhesives and fabrics. Additional RedVector.com courses are available on design considerations. This course includes a test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Rules for Discussing Politics at Work</b>	It's natural to chat with colleagues at work and there's not necessarily anything wrong with a little back-and-forth about political issues. However, those conversations have the potential to go wrong pretty quickly if everyone does not stick to some basic standards. This lesson provides five rules to help keep things civil when having political discussions. These rules can help your team keep from creating an uncomfortable atmosphere when the topic of politics comes up.	0.2	Intermediate
<b>Runoff Analysis using the SCS Method - Part 1</b>	This 3-hour interactive online course presents the basics of the SCS Method of determining runoff, using Technical Release No. 55 (TR 55), Urban Hydrology for Small Watersheds. While the Soil Conservation Service (SCS) has changed their name to the Natural Resources Conservation Service (NRCS), this method is still commonly called the SCS Method, rather than the NRCS Method. The SCS Method is a very commonly used method to determine runoff from smaller drainage basins. The document was released in 1986 and, while it has not been updated to include the common use of personal computers, many of the techniques included are easily adaptable to spreadsheet programs. This course is the first of a two-part course series that provides all of the SCS Method included in TR 55. Part 1 covers the first four chapters of TR 55, which include the Introduction, Estimating Runoff, Time of Concentration and Travel Time and the Graphical Peak Discharge Method. Part 2 covers chapter 5 and 6, which include the Tabular Hydrograph Method and Storage Volume for Detention Basins. The SCS Method is a relatively straightforward method that can be applied in many cases. Unlike many hydrologic techniques, it is a method that produces results that can be duplicated by others without great difficulty. The text of the course is taken from TR 55. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Runoff Analysis using the SCS Method - Part 2</b>	This 2-hour interactive online course presents the basics of the SCS Method of determining runoff, using Technical Release No. 55 (TR 55), Urban Hydrology for Small Watersheds. While the Soil Conservation Service (SCS) has changed their name to the Natural Resources Conservation Service (NRCS), this method is still commonly called the SCS Method, rather than the NRCS Method. The SCS Method is a very commonly used method to determine runoff from smaller drainage basins. The document was released in 1986 and, while it has not been updated to include the common use of personal computers, many of the techniques included are easily adaptable to spreadsheet programs. This course is the second of a two-part course that provides all of the SCS Methods included in TR 55. Part 1 covers the first four chapters of TR 55, which include the Introduction, Estimating Runoff, Time of Concentration and Travel Time and the Graphical Peak Discharge Method. Part 2 covers chapters 5 and 6, which include the Tabular Hydrograph Method and Storage Volume for Detention Basins. The SCS Method is a relatively straightforward method that can be applied in many cases. Unlike many hydrologic techniques, it is a method that produces results that can be duplicated by others without great difficulty. A number of computer programs are available that use the SCS Method. However, use of these programs without an understanding of the assumptions and limitations of the method can result in substantial errors. The text of the course is taken from TR 55. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced

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Title	Description	Hours	Level
<b>Safe Backing of Tractor Trailer Rigs</b>	Backing a single trailer or a set of doubles with a semi tractor is the most dangerous, intricate and time-consuming set of maneuvers a big rig driver has to master. No matter how many miles you drive forward, not one of those miles will help when it comes to backing. This program trains drivers on the mechanics and techniques required in backing large vehicles such as tractor trailers, and discusses using the _cone of visibility_ to insure safe backing.	0.25	Fundamental
<b>Safe Food Handling</b>	According to the CDC, every year in the US, 48 million people are infected with a food borne illness, 128,000 are hospitalized and 3,000 people die. Nobody wants this to happen; and, with proper training in safe food handling, it doesn't have to. Foodborne illnesses can be prevented by insuring your employees are properly trained on basic food safety procedures. This program is targeted at everyone involved in the preparation, handling or service of food and outlines what these basic procedures are. It can assist employers on documenting employee training if required by their local health agency. Topics covered also include: Food-borne illnesses Time and temperature control Personal hygiene Preventing contamination Cleaning and sanitizing equipment and utensils Preventing cross contamination Housekeeping and maintenance.	0.25	Fundamental
<b>Safe Work Permits</b>	This course summarizes the various components of the Safe Work Permit process that should be used within a facility or organization for work being performed by construction and maintenance contractors and employees. The Safe Work Permit process is based around a written form and is a communication tool used to inform employees of safety requirements. Maintenance and construction type activities can then be coordinated with appropriate personnel within the facility to help avoid safety concerns and potential conflicts. The Safe Work Permit can be critical for the success of a site safety program and can be applied to a variety of facilities, including manufacturing facilities, construction sites, etc.	1	Intermediate
<b>Safety and Health - Advanced</b>	This course covers more advanced guidelines and best practices for safety in a variety of industrial workplaces. With safety topics including working around mobile equipment, hazardous chemicals, and moving machine parts, this course provides advanced concepts critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Safety and Health - Basic</b>	This course covers basic guidelines and best practices for safety in a variety of industrial workplaces. From identifying and avoiding common workplace hazards to housekeeping and incident reporting, this course provides the fundamental elements critical to establishing safe work habits for yourself and your team.	0.25	Intermediate
<b>Safety Management</b>	Managing safety is not just something that happens - it should be managed just as quality, productivity and customer-relations are managed. Senior management establishes the overall culture at every facility. This course will review the four major elements to achieve a world class safety and health program at your facility.	1	Intermediate
<b>Safety Management: Barrier Analysis</b>	Every organization has policies regarding defenses, or barriers, to control hazardous energy and prevent it from coming into contact with people, or objects. For example, machine guarding keeps people from contacting moving equipment, and lockout/tagout procedures provide barriers to prevent equipment from moving when its being worked on. Accidents occur when barriers fail. Barrier analysis is used to determine which barriers failed and why, so it is an effective root cause analysis tool for accidents and other incidents. This module describes how to perform a barrier analysis.	0.25	Intermediate
<b>Safety Management: Change Analysis</b>	Change analysis, also known as Is/Is Not Analysis or KT (Kepner Tregoe) Analytical troubleshooting, is a problem solving method that involves comparing a process that has failed or is performing poorly to one that is operating correctly. This module describes how to conduct a change analysis.	0.25	Intermediate
<b>Safety Management: Emergency Action Plans</b>	This course covers the importance of creating emergency action plans in preparation for unexpected emergencies, accidents, and evacuations at industrial workplaces. Based on OSHA standards and recognized industry best practices, this course is intended as an introduction or refresher for general industry workers and those responsible for developing an emergency action plan.	0.25	Intermediate
<b>Safety Management: Events and Causal Factors Analysis</b>	Accidents and major equipment failures are usually the result of several different failures or human errors occurring at the same time. This can make it difficult to analyze information and find root causes. A method such as events and causal factors analysis is useful because it organizes event data on a timeline, which provides a visual summary of an incident and makes it easy to identify relationships between relevant events and their causal factors.	0.25	Intermediate
<b>Safety Management: Floor and Walkway Safety and Auditing</b>	Slips, trips, and falls (or STFs) are a leading cause of work-related injuries, including sprains, strains, fractures, contusions, and abrasions. STFs also account for 15% of all accidental deaths; second only to motorized vehicles as a cause of workplace fatalities. STFs also account for ~15% of workplace fatalities, second only to those related to motorized vehicles. While STFs can occur on level surfaces and at elevated heights, this course focuses only on STFs which occur on level surfaces.	0.5	Intermediate
<b>Safety Management: Hot Work Permit</b>	This course covers the use of hot work permits at general industry facilities. A hot work permit refers to an employers written authorization to perform hot work operations. There is no one standard for Hot Work Permits; different facilities will have different forms and different procedures. This course serves as an introduction to the common protocols in place at most workplaces that are meant to ensure safe conditions before hot work can begin.	0.25	Intermediate
<b>Safety Management: Incident Investigation</b>	As long as people work, there will be safety-related incidents and near misses. But those incidents can be used to make the workplace safer if they are investigated, analyzed, and corrected to prevent their recurrence. This course discusses reasons for incident investigations, the phases of an incident investigation, team leader responsibilities, and who comprises the investigation team. It then provides information on best practices for interviewing witnesses, determining the root cause of an incident, and corrective and follow-up actions.	0.5	Intermediate
<b>Safety Management: Industrial Hygiene Basics</b>	Industrial hygiene (or occupational hygiene, outside of the U.S.) is the discipline of evaluating and controlling workplace hazards in order to protect the health and well being of workers and the community. This involves monitoring of work environments, evaluating exposures to hazards, and employing controls to prevent or minimize exposures and their effects. This course describes the job responsibilities of an industrial hygienist, discusses common workplace hazards, and details measures that can be used to control these hazards.	0.5	Intermediate
<b>Safety Management: Medical and Exposure Records Access</b>	The Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace for their employees. To ensure this, OSHA maintains several standards that describe employee rights for a hazard-free workplace. The Access to Medical and Exposure Records Standard (29 CFR 1910.1020) describes employees rights to access their medical records and information about exposure to toxic substances and harmful physical agents. This module describes employees right of access, what types of records they have access to, and record retention requirements for employers.	0.25	Intermediate

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<b>Safety Management: Near Miss Best Practices</b>	The Occupational Safety and Health Administration (OSHA) has described near misses as incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. It has been shown that injury and damage-producing events are frequently preceded by warning signs or near miss incidents. For this reason, a program designed to identify, record, and address near miss incidents will improve worker safety and the safety culture of an organization.	0.25	Intermediate
<b>Safety Management: OSHA Recordkeeping</b>	In the workplace, employees may be confronted with a variety of injury and illness cases. When these occur, employees will need to determine or help determine whether or not a case should be recorded on the OSHA 300 Log for their facility. Injury records are kept to help analyze injury causes, identify potential trends, and prevent future occurrences. Failure to properly record an injury or illness may also result in an OSHA violation and citation. Thus, it is extremely important to know and understand the OSHA rules and requirements for recording an injury or illness. This course will review the criteria for recording injuries and illnesses for OSHA purposes.	0.75	Intermediate
<b>Safety Management: Root Cause Analysis</b>	How many times have you thought a problem was fixed only to have it happen again? This happens when only the symptoms, not the underlying, or root, causes, are addressed. Root cause analysis is a generic term used to describe various methods that can be used to find and eliminate root causes so problems do not recur. This module will describe the steps involved in a root cause analysis and some tools and methods that can be used.	0.25	Intermediate
<b>Safety Management: Root Causes of Human Behavior</b>	Human errors occur quite frequently. To prevent recurrence of the same errors, careful analysis is required to identify and eliminate the root causes of those errors. However, determining the root causes of incidents caused by worker behaviors is typically more difficult than finding the root causes of mechanical failures. This module will describe some different models and analysis methods that can help identify root causes of human errors and behavior problems.	0.5	Intermediate
<b>Safety Management: Safety Inspections and Observations</b>	Accidents are caused by unsafe workplace conditions or unsafe behaviors. Inspections and observations allow you to be proactive by evaluating how safe your workplace is instead of waiting until someone gets hurt. This course will provide an overview and general guidelines for performing safety inspections and observations.	0.25	Intermediate
<b>Safety Management: Slip, Trip, and Fall Prevention Inspections</b>	Slips, trips, and falls (STFs) are a leading cause of work-related injuries, and the second leading cause of workplace fatalities, after motorized vehicle incidents. A comprehensive floor and walkway safety program can greatly reduce STF hazards and incidents. Among other things, this program should include floor and walkway audits and STF prevention inspections performed by trained and qualified persons. STF prevention inspections should include annual inspections, routine safety inspections, and change analyses.	0.5	Intermediate
<b>Safety Management: Task Analysis</b>	When an incident, or problem, appears to have resulted from a human error during the execution of a task, or procedure, a task analysis should be performed. The objective of a task analysis is to determine how a task was actually performed, compare that to how it should have been performed, and identify corrective actions that will increase the likelihood that it will be performed correctly in the future. This module describes the steps involved and how to perform a task analysis.	0.25	Intermediate
<b>Safety Showers and Eye Washes</b>	Chemicals are frequently used and stored in industrial environments. It is imperative to handle them with care and wear appropriate PPE to avoid exposure. If an accident does occur, however, safety showers and eye washes can be used to cleanse the affected area and decrease the extent of injury. Knowing use procedures, maintenance practices, and the locations of safety showers and eye washes will reduce the risk of serious injury and lead to safer conditions in the workplace.	0.5	Intermediate
<b>Safety Valves</b>	Safety valves are commonly used in gas and steam systems to relieve excess pressure before it can cause injuries or equipment damage. Safety valves open quickly to release large volumes of gas or steam. This course is divided into two sections. Section 1: Types of Safety Valves, covers the concept of pressure and how it is measured and explores methods of relieving excess pressure through use of a rupture disc systems, relief valve systems, and safety valves. Section 2: Safety Valve Maintenance describes troubleshooting and basic maintenance procedures for a typical safety valve. The section consists of three parts: External Inspection Disassembly and Inspection Reassembly and Testing	1	Intermediate
<b>Safety: Electrical Part 1 - Fundamentals, Materials &amp; Equipment Grounding</b>	Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding	2	Intermediate
<b>Safety: Electrical Part 2 - Hazardous Location, Clearances &amp; Safety Practice (RV-10744)</b>	This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 2 looks at: Hazardous locations Safe working clearances Safety practices	2	Intermediate
<b>Safety: Working with Chemicals</b>	This 3-hour interactive online course deals with the safe use of chemicals in the workplace. The two primary causes of chemical accidents are the misuse of chemicals and the improper disposal of chemical wastes. Understanding the hazards that chemicals can create is the first step in protecting yourself (and those around you) from harm. The main goal of this course is to provide you with sound, practical knowledge about chemical use and disposal, both in the workplace and at home. You'll learn how to recognize common chemical hazards and how to deal with them. You'll learn how to perform a job analysis to look for potential chemical dangers in your daily tasks. Finally, you'll learn how to take precautions to avoid chemical accidents and make your job as safe as possible. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Intermediate
<b>Sales 101: Appointment Making</b>	The first step in being a successful salesperson is to have someone to sell to. In this course, professional Sales Trainer Marisa Pensa walks you through the basics of getting sales appointments, including: What to say (on the phone or in person) What to NOT say (on the phone or in person) How to make effective phone calls Knowing your numbers	1.25	Fundamental

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<b>Salesforce Essentials</b>	Everything you need to know to start using Salesforce today. If your company has started using Salesforce.com and you need to get up to speed, this course is for you. In this course, Certified Salesforce Administrator, Mia Huffman, walks you step-by-step through using Salesforce for the first time. By the end of this course, you will be able to start using Salesforce to manage leads, accounts, contacts, and opportunities and track your sales activity against these objects.	1.25	Fundamental
<b>Saving Time in Outlook</b>	From timewaster to productivity booster: change the way you use Microsoft Outlook. Outlook is packed with great tools but there a few that can make a tremendous difference in your efficiency. With the automating features, tasks that you do on a regular basis that can take time will become simpler and faster. Topics covered include: Using Quick Steps Creating reusable text, searches, and rules to automate things you do often.Using color, rules, and the task list to highlight and make email easier to manage and organize This course is the first step in Mastering Outlook. You will be sure to want to find out more about how Outlook can help you find more hours in your week!	0.5	Fundamental
<b>Scaffolding for Canada</b>	This course covers some of the more important regulation requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate
<b>Seals: Gaskets and Packing</b>	The purpose of this course is to examine some ways that leaks in fluid systems are controlled by the use of gaskets, packing, and mechanical seals. At the completion of this course, participants will be able to describe the components and procedures involved in working with gaskets, packing, and mechanical seals.	1	Intermediate
<b>Seawalls and Boat Docks for Home Inspectors</b>	In this course we will cover the inspection of seawalls, boat docks and boatlifts, as well as davits. We will also take a look at the materials used for construction, both used in the old days as well as what's currently being done or new. I'll show you photos of well-constructed and maintained seawalls, as well as pictures of the problems I've encountered while inspecting properties. We will review the anatomy of a seawall, a boat dock, and boatlifts. And I'll give you inspection tips from my experience as we go through the course.	2	Fundamental
<b>Security Begins At The Front Desk</b>	Hotel Security requires the participation and cooperation of everyone on Staff, not limited to Security Personnel. Front Desk personnel are a pivotal part of the Security of your property. Front Desk personnel are often the first line of defense and have perhaps the most visible role in spotting and preventing potential threats, and reporting suspicious activity. The Security of any property is at higher risk without a vigilant Front Desk Staff. This program trains your Front Desk Associates, Bell Staff or anyone working in, around or near your property's lobby. Topics covered also include:Protecting Guest PrivacyHuman TraffickingEmergency ResponseKey Control	0.1	Fundamental
<b>Seismic - Wood Diaphragm Design for Out of Plane Wall Anchorage</b>	This course will explain the design and detailing of subdiaphragms for a flexible roof system using ASCE 7-10 Section 12.11 Structural Walls and Their Anchorage. Many low rise buildings are constructed with heavy walls of masonry or concrete and light wood roofs or floors. During an earthquake the light roof framing must stabilize the heavy walls as those walls move out of plane. IBC 2012 and ASCE 7-10 require that the roofs and floors be designed to transfer the out of plane wall forces through the diaphragm using the subdiaphragm concept. This course will show you how to develop the demand on the diaphragm, calculate the capacity of the framing members and detail the members to achieve this load transfer.	1	Intermediate
<b>Seismic Diaphragm Demands</b>	This course will cover the development of the seismic diaphragm forces based on the IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.10. The demand on a diaphragm during a seismic event is not well understood. Using the Equivalent Lateral Force, this course will review the forces on the diaphragms and compare them to the story forces.	1	Intermediate
<b>Seismic Equivalent Lateral Force Base Shear</b>	This course will cover the development of the equivalent seismic force based on IBC 2012 and ASCE 7-10 using ASCE 7-10 Section 12.8. The development of seismic forces using the Equivalent Lateral Force Procedure equation $V=C_s * W$ will be explained through the terms of Newton's 2nd Law. The course will define the forces generated during an earthquake and how those forces travel through the building to the ground.	1	Fundamental
<b>Selection, Specification and Installation of Safety and Security Barriers and Bollards</b>	The use of a vehicle by terrorists to attack crowds is on the rise. In 2016, more people in Europe and the United States were injured or killed by vehicle attacks than by shootings and bombings combined. The Storefront Safety Council notes that commercial buildings are struck 60 times per day, resulting in over 4,000 serious injuries and as many as 500 deaths. The use of bollards and barriers in high security applications is well known. This interactive online course will teach professionals the Why and Where and How of using bollards and barriers to protect people and property, and give design parameters that account for vehicle weights and speeds, approach vectors, penetration levels and more. The course will give numerous examples, will teach about ASTM standards F2656 and F3016 for the testing of bollards and barriers, and discuss recent code changes and legal and other trends as pertaining to providing effective protection and security to the public by specifying the correct product, installed in the correct way, and tested to the correct standard of performance.	1	Intermediate
<b>Self-checking (STAR)</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will learn to use STAR, a self-checking human performance tool, to enhance your ability to minimize errors, reduce the frequency of events, and reduce the severity of events. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Septic System Design</b>	Septic is from the Greek septikos, meaning to putrefy. Most commonly this word is used to describe a system for sewage treatment and disposal or septic systems. Sewage treatment uses anaerobic decomposition to break down organic matter. When sewage or waste is generated it can be processed in a municipal water treatment plant or several types of land treatment systems. Even with the urban or suburban sprawl that has occurred in the recent decades, some residential and commercial properties are still located in areas that are not on the municipal sewer grid. These places tend to use onsite sanitary sewer treatment for its waste. This 1-hour interactive online course places its focus on treating sewage with an onsite septic system. An example problem is given to provide the student with more direction in septic system design. The concentration of this course is designing on-site septic systems using a septic tank and infiltrator trenches in the leachfields. Items discussed include: sizing septic tanks, percolation tests, sizing infiltration chamber, the environmental health effects of sewage and much more.By the time you reach the end of this course, you should be armed with all the knowledge and skills to design basic on-site septic systems and to further your study in this important field.	1	Intermediate
<b>Series Circuits</b>	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. In this course, you will learn about the fundamentals of series circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate

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Series-Parallel Circuits	The components of an electrical or electronic circuit can be connected in many different ways. The two simplest of these are called series and parallel and occur very frequently. Components connected in series are connected along a single path, so the same current flows through all of the components. Components connected in parallel are connected so the same voltage is applied to each component. In this course, you will learn about the fundamentals of series and parallel circuits as well as how to calculate current, voltage, and resistance in them.	1	Intermediate
Set-Up of Engineering Controls for Mold Remediation Projects	This course will help the project leader better plan and lead remediation projects, making more efficient use of technicians, equipment, barriers and supplies. Using numerous examples of good and bad engineering controls, we will lead you to a better understanding of how you can creatively arrange and maintain isolated work enclosures to the success of the project and health of the occupant.	1	Fundamental
Seven Basic Quality Tools	The seven basic quality tools are a set of commonly used graphical statistical analysis tools. They can be used to help solve many different types of problems, not just quality problems. The seven tools are: cause and effect diagrams, check sheets, control charts, histograms, Pareto charts, scatter plots, and data stratification. It is important to understand the purpose of each of these tools and how to interpret the information. This course provides a summary of each tool, including common uses.	0.25	Intermediate
Sexual Harassment Awareness	In 2010, more than 11,000 sexual harassment claims were filed with the United States Equal Employment Opportunity Commission (EEOC). The EEOC states that it is illegal to harass a person (an applicant or an employee) because of that person's sex. Sexual harassment can include unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature. This course defines the term sexual harassment and explains the different forms it can take. It also delves into the negative effects sexual harassment has on both an individual and on the workplace as a whole, and suggests appropriate responses to sexual harassment.	0.25	Intermediate
Shaft Alignment, Part 1	Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment.	1	Intermediate
Shaft Alignment, Part 2	Whenever two pieces of rotating equipment, such as a pump and a motor, are coupled together, the shafts of the two components must be properly aligned. In other words, the shafts of the two components must form one continuous straight line. If shafts are misaligned, excessive vibration and equipment wear can occur. These conditions can lead to premature equipment failure and extra maintenance costs. This course will cover basic knowledge and skills necessary for proper shaft alignment.	1	Intermediate
Shaft Alignment: Reverse Dial and Laser	This course is designed to familiarize participants with equipment and procedures for aligning shafts using the reverse dial method and using a laser system. After completing this course, participants should be able to prepare and set up equipment for a reverse dial alignment and for laser-based alignment. They should also be able to measure shaft misalignment and determine how the misalignment should be corrected. Finally, participants should be able to correct shaft misalignment so that the alignment is within specified tolerances.	2	Intermediate
Shaft Alignment: Rim and Face	This course is designed to familiarize participants with the basic principles associated with measuring and correcting shaft misalignment using the rim and face method. After completing this course, participants should be able to describe the basic types of misalignment, describe general preparations for a rim and face shaft alignment procedure, and explain how to use the rim and face shaft alignment procedure. They should also be able to explain how to use the rim and face method to measure and correct misalignment on horizontally mounted equipment and on vertically mounted equipment.	2	Intermediate
SharePoint for Site Owners	Learn to Create and Manage Your Teams SharePoint Site in Less than 90 Minutes Now more than ever, SharePoint is a powerful and user-friendly tool for creating a common place where your team can share documents, collect data, and collaborate. In this course, you'll quickly learn how to create your own site and invite your team members. SharePoint expert, Kat Snizaski, walks you step-by-step through creating a parent site and adding subsites for multiple teams. You'll learn how to create and manage document libraries and custom lists that enable collaboration. You'll also learn how to assign user permissions and get your team rolling on their new collaboration platform!	1.5	Fundamental
Sharepoint Online Essentials	Share Files and Post Information For Your Team with SharePoint Online SharePoint is the behind-the-scenes backbone of Office 365, but the SharePoint Online app has its own benefits. In this course, IT guru Chip Reaves demonstrates how to use SharePoint Online to create shared resources, including a shared document library, and to create internal websites to share information with your team.	0.75	Fundamental
Sharing the Road with Pedestrians and Cyclists	Unless you are driving on an interstate, it is possible you will be sharing the road with other types of road users. For example, you may encounter pedestrians and bicyclists while driving in urban, suburban, or rural areas. These situations are dangerous because collisions between vehicles and cyclists or pedestrians often result in serious injuries or fatalities. This course will identify clues that cyclists and pedestrians may become hazards and strategies to prevent collisions with cyclists or pedestrians.	0.25	Intermediate
Shop Safety	The shop. A lot of different things go on in here. What DOESN'T go on in here? It's a busy place with a variety of functions, tools, personnel and responsibilities. Perhaps the most important responsibility is safety...your safety and the safety of those working around you. Topics covered also include: Fire Prevention Electrical Safety Compressed Gas Respiratory Hazards Safe Lifting Chemicals Slips and Falls and Injury Reporting	0.1	Fundamental
Shoulder Injury Prevention	In the U.S., shoulder injuries result in more days away from work than any other work-related injury. Many activities including reaching and lifting can strain the body and cause injuries to the back, neck, shoulders, and limbs. To prevent shoulder injuries, make sure equipment and controls are maintained and function correctly, follow safe work practices, use required PPE, don't overexert, maintain good posture, and stretch and take breaks regularly. It is also important to exercise and take care of yourself during non-work hours.	0.5	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Simple 300x100 Parcel - A Dave Gibson Metes and Bounds Case</b>	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for METES AND BOUNDS parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Metes and Bounds Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Single-Phase AC Induction Motor Maintenance</b>	Most single-phase alternating current (AC) motors are small-horsepower motors designed to operate on standard single-phase AC current. They are found in a number of home and industrial tools, including vacuum cleaners, can openers, power saws, drills, and fans. Electrical maintenance personnel are responsible for keeping the single-phase motors in their plant in top operating condition and for repairing them correctly and quickly if the need arises. This course explains how single-phase AC induction motors operate and how they are classified. It also covers some common procedures for testing and maintaining them.	1	Intermediate
<b>Site Engineering for Landscape Architects: Contours, Forms, Interpolation, and Slope</b>	A clear understanding of what a contour represents is fundamental to the grading design process. Technically defined, a contour is an imaginary line that connects all points of equal elevation above or below a fixed reference plane or datum. This datum may be mean sea level or a locally established benchmark. A contour line is the graphic representation of a contour on a plan or map. In order to make informed design decisions as well as to execute construction drawings accurately, landscape architects require topographic data for all site development projects. This course discusses the concept of contour lines and delineates a baseline of common contour signatures. The course expands on these concepts with explanations of interpolation and slope formulas and examples of their applications. This course also introduces the basic mathematical equations associated with plotting and manipulating contour lines. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Design and Layout</b>	When planning landscaping projects, it's important to understand that grading IS design. Grading and site design are two highly related and dependent processes, and to achieve an appropriate final project, both must be integrated at the outset of a project. A change in grade must be purposeful, whether for functional or aesthetic reasons. In this course, we will cover the role of site engineering in the aesthetic, perceptual, spatial, and environmental considerations of a design. We will examine the categories of aesthetics: geomorphic, architectonic, sculptural, and naturalistic. We'll explain the uses of four types of perception. We will also discuss methods and practices associated with developing the layout plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Designing and Sizing Storm Water Management Systems</b>	The purpose of managing runoff is to ameliorate safety and health hazards, including flooding and property damage, stagnation, earth slides, and reduced soil-bearing capacity; to increase the usability of areas through the elimination of unwanted water; to provide better growing conditions for plants by increasing soil aeration and reducing soil saturation; and to prevent erosion by reducing the rate of flow and volume of runoff. There are a variety of management techniques that may be used to control storm water runoff. The purpose and environmental conditions will influence the selection of appropriate techniques. This course will discuss storm water management, soil erosion, and the design and sizing of management systems, with particular emphasis on the Rational, Modified Rational, and TR55 Natural Resources Conservation Service methodologies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Determining Rates and Volumes of Storm Runoff</b>	To design and size storm water management devices, such as grassed swales, drainage pipes, and detention storage ponds, it is first necessary to estimate the rates and volumes of runoff that must be handled. The science of hydrology, which deals with precipitation and runoff, includes a number of models that help predict the runoff to be used as input to the design procedures. This course discusses the Rational method and Modified Rational method for designing and sizing of management systems, and provides examples of how these methods may be applied. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Estimating Runoff Rates, Volumes, and Required Detention Storage</b>	The USDA NRCS, formerly known as the Soil Conservation Service (SCS), has developed a methodology for determining runoff rates and volumes. In this course we will cover rainfall patterns; the procedures of TR55 including computing runoff, hydrologic soil groups, and discharge method; and estimating detention storage volume. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
<b>Site Engineering for Landscape Architects: Grading</b>	A clear understanding of what grading represents is fundamental to the grading design process. In this course we will compare environmental and functional restraints. You will get information and instruction on design problems of both types of elements, slope formula, and storm runoff. We'll also cover methods for grading terraces, the grading process phases, and the grading plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	2	Intermediate
<b>Site Engineering for Landscape Architects: Horizontal and Vertical Road Alignment</b>	The purpose of this course is to present the basic engineering necessary to lay out roads and drives in the landscape. In order to create safe, enjoyable, and easily maneuverable vehicular circulation, roads must be engineered in both the horizontal and vertical planes. In this course you will receive information, examples with solutions, and opportunities to test your retention of the material presented. We will review basic components of road alignment and definitions of circular curve elements. You will get step-by-step processes and road alignment procedure. We will examine various approaches to design and practice making calculations using proven formulas. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
Site Engineering for Landscape Architects: Soils in Construction and Earthwork	Soil structure and composition need to be considered in many aspects of site development. This course focuses on the use of soil as a construction material and provides an overview of how physical and engineering properties vary with soil type. We will cover definitions, soil characteristics, soil classifications systems, geotextile types and applications, and earthwork grading activities. We'll also give you examples of the computation of cut-and-fill volumes. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Storm Water Management and Control	The acts of grading and controlling and managing storm water runoff are inextricably linked. Almost all site development projects result in the remodeling and sculpting of the earth's surface as well as changes in surface character. These changes may significantly alter storm runoff patterns in terms of rates, volumes, and direction. Landscape architects and site planners must understand the consequences if these changes are to be effected in a safe, appropriate, and ecologically sensitive manner. This course provides an introduction to basic management principles and techniques, as well as potential problems caused by storm water runoff. The proper design of any management system requires an interdisciplinary approach, including professional expertise in ecology, engineering, hydrology, and landscape architecture. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Engineering for Landscape Architects: Storm Water Management System Components	In this course we will introduce a range of tools that may be employed singly or in combination on a single site to manage storm water. We will review the traditional storm water management system components and the principles and techniques. We will cover infiltration systems and detention systems. You'll get discussions of rain-water harvesting and constructed wetlands. We'll also explain the unifying concept of using planted structures or other landscape interventions to decentralize storm water management and minimize the need for extensive pipe and drain structures. You'll also get three case studies to analyze. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2013. All rights reserved.	1	Intermediate
Site Planning and Design	Buildings, houses, parking lots and garages - private and commercial structures were once natural, blank slates that were planned, designed, and molded into what they are today. This 4-hour interactive online course covers all aspects in the design and planning of sites. Based on the Department of the Army's Technical Manual, Site Planning and Design, several areas are covered including site reconnaissance, the placement of utilities, grading the site, placement of buildings, and sight distance. This course provides the knowledge to design an efficient and economical site that works in harmony with the natural conditions of the area. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Intermediate
Site Utility Design: Commercial Buildings	This 2-hour interactive online course provides general information and design guidelines regarding utility services to buildings including domestic water, fire protection, sanitary sewer, storm sewer, and natural gas. These utility services are covered with a typical small commercial building project as the reference. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Skype for Business Essentials	Chat, Call, And Videoconference With Ease Using Microsoft's Business Communication App! Skype for Business is an incredibly powerful communications tool, used for everything from simple chat conversations to webinars for 10,000 people, and can even replace a business's phone system.	0.3	Fundamental
Sliding Surface Bearings, Part 1	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings.	1	Intermediate
Sliding Surface Bearings, Part 2	This course provides a reference tool that can be used to reinforce understanding of the operation and maintenance of sliding surface bearings. At the completion of this course, participants will be able to describe the basic concepts, performance, and maintenance tasks involved in working with sliding surface bearings.	1	Intermediate
Slips, Trips, and Falls	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.48	Intermediate
Slips, Trips, and Falls for Canada	Falling at work may not seem very dangerous, but falls are the leading cause of workplace injuries. They commonly cause cuts, bruises, broken bones, back injuries, sprains, and strains. Hazards that cause slips, trips, and falls can be controlled and eliminated if they are identified, reported, and corrected. This course describes common causes of slips, trips, and falls, how they can be prevented, and first aid procedures for fall injuries.	0.5	Intermediate
Small Scale and Micro Scale Wind Applications	Exactly how can we harness the power in wind? Do you need a giant wind turbine? This interactive online course provides an overview of wind technology at a much smaller scale. Topics covered include small scale and micro scale wind technologies, including: applications, estimating wind turbine production, and siting considerations. We will also detail the process for installing small wind turbines and small wind system components and explore the newest research focused on micro (nano) wind technology.	2	Intermediate
Smart Business Writing: 4 Stages to Writing Your Best	Some people think that in the grand scheme of things, excellence in writing isn't all that important as long as you get the General idea across. But the sentence above is a perfect illustration of why that simply isn't true: Did it make you wary to see that the first sentence of a course intended to teach you writing tips was full of errors? Good writing gives you and your ideas authority, visibility, and stature. Bad writing, on the other hand, can make readers question your credibility and/or expertise, can be costly to a business, and can even damage the career of the writer. Inefficient, unclear, misleading, irrelevant, sloppy or deceptive written communication costs companies across the board billions each year. This course will help you improve your skills and avoid careless errors by focusing on four stages of writing: preparing, planning, drafting, and editing (revising and finalizing).	1	Intermediate
Smart Business Writing: Emails & Technical Proposals (RV-PGM139)	This interactive online course is presented in two modules: How to Write Powerful & Persuasive Emails Tackling the Technical Proposal This course covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. The second lesson discusses writing business and technical proposals and focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Smart Business Writing: How to Write Powerful &amp; Persuasive Emails</b>	Writing an email is the same as any other form of correspondence, only faster and a lot less formal, right? Wrong. Almost every professional today is faced with the seemingly simple task of writing emails but there are specific considerations that apply to email that we should always consider before we hit Send. This 1/2-hour online interactive course from SmartTeam teaches you the specifics for using electronic mail to focus and present information effectively. It covers the need to capture your reader's attention immediately and then hold it by arranging the details in a logical sequence, and helps you avoid common pitfalls like a careless subject line and lax grammar and style conventions. You'll also learn what the differences should be between composing an email that tells information and email that sells; how to use the Pyramid writing plan for maximum efficacy in getting your message across, and perhaps the single most paramount rule in email writing: Pause before you hit Send!	0.5	Intermediate
<b>Smart Business Writing: Short, Sweet and To-the-Point Reports</b>	If the skills you'd acquired by the time you wrote your last book report for school aren't cutting it for you in the business world, this course can teach you what you need to know. Almost every professional has to write a short report at some point in his or her career, and despite the fact that it doesn't have to be long, it can still be daunting - especially if you don't like writing. This interactive online course will teach you to use the simple and extremely effective Pyramid method of writing to create the most common types of reports professionals will be faced with in their careers.	1	Intermediate
<b>Smart Business Writing: Tackling the Technical Proposal</b>	Proposals are an integral part of the professional world. Proposal topics can range from a request for more department funding to a plan for redesigning a highway. Regardless of the subject, proposals are intended to persuade. A poorly written or dull document that doesn't present the critical components in logical order can mean your presentation or request is brushed aside or not taken seriously. This 1/2-hour interactive online course on writing business and technical proposals focuses on the Pyramid writing method as a foundation for written communication. Using the Pyramid method means you create a solid writing foundation and then build from the ground up - which is key to effective communication and a more credible and convincing proposal. The clearly defined parts of a pyramid make proposals easier for writers to write and, as a result, far easier for the readers to read. Once you have successfully completed this SmartTeam course, you will have the tools to significantly improve your proposal writing skills and help ensure the success of your company.	0.5	Intermediate
<b>Smart Business Writing: Writing Effective Emails</b>	In today's business world, email is often the preferred means of exchanging information, yet many organizations overlook this very important form of business communication. So much of our daily social and business interactions occur over the Internet that it is very easy to take such an important means of communication for granted. Because of the preference for email interaction over other forms of communication, utilizing email in a professional and efficient manner is vital for success. This course discusses ways to make this most important means of communication effective and efficient so you can produce stellar emails that grab your reader's attention. Tips for structuring emails will be presented, as well as knowledge about proper professional email tone and language.	0.5	Intermediate
<b>Smart Certificate: A Comprehensive Sales Program</b>	In this comprehensive sales certificate you'll get everything you need so you can start making sales fast. You'll learn how to approach cold calls, create winning phone scripts, how to identify qualified prospects and most importantly how to close the sale. Additionally you'll get a course on B2B sales as well as a course on the complete sales cycle. Whether you are a seasoned pro or a budding sales superstar this comprehensive sales certificate has everything you need to start selling today. The courses contained in the certificate are: Smart Sales 1: Understanding the Psychology of Sales Smart Sales 2: Naming the Decision Maker & Setting Appointments Smart Sales 3: Holding Appointments & Advancing the Sale Smart Sales 4: Dealing with Objections & Closing the Sale Smart Sales 5: Business-to-Business Sales Smart Sales 6: The Sales Cycle	3	Fundamental
<b>Smart Customer Service 1: Courtesies, Attitude, and Ethics</b>	You are the face of your business; therefore, your company depends on you to present yourself well at all times. This interactive online course is designed to help you understand how to do that. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet.	0.5	Intermediate
<b>Smart Customer Service 2: Listening for Understanding</b>	As a frontline employee you are the primary source of communication between your company and its customers. You can improve your ability to interact well by developing listening skills. When you hear and interpret a message correctly, you will be able to understand your customers' requests and that is the key to handling each and every customer successfully. This interactive online course is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	0.5	Intermediate
<b>Smart Customer Service 3: Effective Verbal and Nonverbal Communication</b>	Communication is the give and take exchange of information; therefore, effective verbal and nonverbal skills are crucial to understanding your customers completely. In the previous course in this series, you learned about listening for understanding, or the taking of information. In this course you will learn how to give information effectively by speaking well and using your nonverbal signals to enhance your message. This interactive online course is designed to help you improve your communication skills when you are the sender of the message, whether you handle customers face-to-face or by telephone.	1	Intermediate
<b>Smart Customer Service 4: 3 Steps to Successful Customer Interaction</b>	In this lesson you will learn how to combine the basics of customer service that will help you interact well with your customers: how to present yourself well, listen for understanding, and communicate effectively to complete your customer interactions successfully. Every customer interaction involves three important steps that need to be completed in order to satisfy customers. This interactive online course is designed to help you to fully understand these three steps so that you will complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	0.5	Intermediate
<b>Smart Customer Service 5: Handling Customer Complaints</b>	This interactive online course is designed to help you understand why customers may complain, uncovers the special skills needed for handling customer complaints, and teaches an easy to learn step-by-step method for handling these types of customer contacts. At the end of this course you will apply the skills to your work environment to successfully handle any customer in any situation.	1	Intermediate
<b>Smart Customer Service: Courtesies, Attitude, Ethics and Listening for Understanding</b>	This two part course discusses Smart Customer Service. Part One is designed to help you understand how to present yourself well at all times. You'll learn how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. Part Two is designed to help you improve your listening skills so that you will be able to interact well with all your customers, whether you handle them face-to-face or by telephone.	1	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Smart Customer Service: Courtesies, Listening for Understanding for Successful Customer Interaction (RV-PGM140)</b>	This interactive online course is presented in three modules: Courtesies, Attitude, and Ethics Listening for Understanding 3 Steps to Successful Customer Interaction You will learn how to combine the basics of customer service, how to conduct yourself in first impression situations, speak and act courteously at all times, maintain a positive attitude, and act ethically and fairly with every customer you meet. It will also help you improve your listening skills, and teach you to complete every customer interaction successfully, whether you handle customers in-person, by phone, over the Internet, or through self-service options.	1	Intermediate
<b>Smart Finances: Creating a Budget that Works for You</b>	A budget can be a very effective financial tool. If used correctly, it can help you determine where your finances are, and forecast where they need to be. With the economy chugging slowly toward recovery, it's important to get a handle on your spending so you can make the best choices when allocating your money. A good budget plan is one that makes sense to you, and one that YOU KNOW you will be able to maintain. This interactive online course will help you take a step towards doing just that. By discussing best practice methods and methodologies that have proven fruitful for many formerly harried individuals, you will learn tested strategies for establishing and maintaining a budget that works for you.	1	Intermediate
<b>Smart Health: Best Practices to Help You Quit Smoking</b>	According to the Centers for Disease Control and Prevention, cigarette smoking accounts for approximately 443,000 deaths every year in the United States—roughly one out of every five people. It is the leading cause of preventable death among Americans, yet an estimated 46 million U.S. adults continue to smoke, and an alarming number of young adults and teens are following suit. Quitting smoking is the single best thing you can do to protect and improve your health and the health of those around you, and those who are able to quit greatly reduce their risk for heart disease, stroke, cancer and other tobacco-related health illnesses. Although quitting isn't easy, it is possible with the right combination of knowledge, support, and aids/medications. This interactive online course provides the latest in evidence-based research on proven practices and coping strategies to help you quit smoking. All the information is presented in an easy-to-follow format that will walk you through the key elements you need to quit smoking forever.	3	Intermediate
<b>Smart Health: Child Nutrition - How to Avoid/ Prevent Childhood Obesity</b>	Childhood obesity is alive and real. In fact, it is triple the rate from just one generation ago. While there are several causes of obesity in today's youth, the possibilities for prevention are literally endless! By teaching your child how to make healthier food choices and encouraging active play (yes, play!), you can help him or her grow into a fit and healthy adult. What a gift!	1	Intermediate
<b>Smart Health: Drinking Responsibly</b>	Drinking responsibly has a number of benefits, such as stress reduction, enhanced mood and improved mental health, the experience of pleasure, increased creativity, social benefits, and positive effects on quality of life. Your ability to drink responsibly depends on genetics, age at which you started drinking, culture, family environment, and mental health. This interactive course provides you with tips for drinking responsibly, as well as what drinking responsibly involves, and does not involve..	1	Intermediate
<b>Smart Health: Eating Right</b>	In a world of fad diets, quick fixes and fast food, eating right and staying healthy can be a real challenge. The goal of this course is to give you all the tools you need to get all the good nutrition your body requires to maintain a lifetime of health and wellness. If you want to shed unwanted pounds, you can use these guidelines to reduce your caloric intake, increase your activity and reduce your consumption of fat and sodium in the process.	1	Intermediate
<b>Smart Health: HIPAA Privacy Standards for Everyone</b>	We all have personal health information, and many of us are responsible for the health and personal information of others. Most of us agree that information should be private and therefore, protected. The HIPAA Privacy Standards were created for that purpose. Criminal charges can be brought against anyone in healthcare who is not in compliance. You can be knowledgeable and better protected by being familiar with these standards. This interactive course gives you definitions and ways to recognize non-compliance. We'll discuss how to protect private health information and we'll give you examples of situations you could face and how to handle them correctly.	1	Fundamental
<b>Smart Health: Managing Your Cholesterol and Blood Pressure</b>	Are you one of the 1 in 3 adults suffering from high blood pressure or high cholesterol? If left untreated, both can cause serious harm to your health—including heart disease and stroke! Did you know there are simple, painless steps you can put into practice today to improve your numbers? The power to achieve a healthier body is in your hands!	1	Intermediate
<b>Smart Health: Physical Fitness - Choosing an Exercise Plan That's Right for You</b>	Every time you turn around it seems that there is a new fad, diet, or piece of exercise equipment on the market. With so many things to choose from, how do you know where to begin? The goal of this course is to introduce you to the basics of exercise, and provide you with a program that will help you take that first step toward fitness. We will look at the physical and mental benefits of exercise, and discuss how to create a successful exercise program that you can use to get started.	1	Intermediate
<b>Smart Health: Proper Posture and Breathing</b>	Poor posture, typically defined as having excessive curvatures of the spine, slumped shoulders and a forward projecting chin, are common ailments in today's society. Improper posture inhibits proper breathing patterns by limiting the room the diaphragm has to push down into the abdomen to make room for the lungs. And breathing is one of the basic requirements of life; it is the first thing we do when we are born and the last thing upon death. Each minute, the average person breathes 12 times, inhaling oxygen and exhaling carbon dioxide. These processes are controlled by the autonomic nervous system and unless you are actively listening to or watching for breathing, you are essentially unaware of it.	1	Intermediate
<b>Smart Health: Sleeping - How to Ensure You Are Well-Rested &amp; Energized</b>	Do you take sleep for granted? Many of us can fall asleep quickly anywhere while others struggle. If you want information about proven tools for getting the rest you need, this is the course that will supply your wish list. You will get foundational information, myth busters, and facts. You will also receive tools and methods from experts to use in your individualized solution for a good night's sleep.	1	Intermediate
<b>Smart Health: Yoga &amp; Meditation - Finding your Inner Chi</b>	Yoga is a form of exercise that can be used to reduce stress in our lives. Benefits include improving posture, learning better breathing and relaxation techniques, and balancing the Chi using exercise. In this course, you will learn ways of finding stillness, the 7 chakras, and the meditation techniques associated with each.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>SMART Instrumentation in Biological and Chemical Treatment</b>	What is SMART instrumentation? The definition and implementation of SMART Instrumentation has evolved over the past five or six decades to its present state where we can literally and figuratively put cruise control on a bicycle; however, it does not ride itself. Proper implementation of a monitoring and control scheme for even a very small system can generate terabytes of useful information per year, all of it meaningless unless correlated, analyzed, trended, structured, and most importantly, acted upon. In this interactive online course, we will discuss the quality and performance specifics, operational reliability, environmental safeguards, and safety risks for control and monitoring systems using SMART instrumentation. We will also cover the reduced costs that can be obtained using SMART instrumentation.	1	Intermediate
<b>Smart Leadership: Leaders, Model the Way (RV-PGM141)</b>	This interactive online course is presented in two modules: Smart Leadership: What Leaders Do    Smart Leadership: Model the Way Introducing the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage and uses actual case examples from real people who have achieved remarkable success. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you.	3	Intermediate
<b>Smart Leadership: Leadership Qualities (PGM142)</b>	This interactive online course is presented in two modules:    Smart Leadership: Inspire a Shared Vision    Smart Leadership: Encourage the Heart Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. In Encourage the Heart, you'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations.	3	Intermediate
<b>Smart Leadership: Part 1 - What Leaders Do</b>	Extraordinary results can occur in an otherwise ordinary setting, and the objective of this course is to help you to create the conditions that lead to those results. Leadership development is ultimately self-development, and this series of SmartTeam courses will help you meet that daily challenge. Leadership is not the private reserve of a few charismatic men and women - it is a process that ordinary people use when they are bringing forth the best from themselves and others. This series will inspire you to create a workplace that rejoices in celebration and encourages the best efforts from everyone. This interactive online course introduces the five practices of exemplary leadership - model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. It sets the stage for the remaining courses in the series and uses actual case examples from real people who have achieved remarkable success. You'll also find out what four qualities - from among 225 traits - people consistently look for in a leader they would willingly follow. This course series is adapted from the extensively researched and highly respected book, The Leadership Challenge, by James Kouzes and Barry Posner. It is recommended that you take this course before attempting later courses in the series.	1.5	Intermediate
<b>Smart Leadership: Part 2 - Model the Way</b>	What do Abraham Lincoln, Martin Luther King Jr., Susan B. Anthony, César Chávez, the Dalai Lama, Eleanor Roosevelt, Mother Teresa, and Archbishop Desmond Tutu have in common? They all have, or had, strong beliefs about matters of principle and an unwavering commitment to a clear set of values. They all are, or were, passionate about their causes. Another thing they have in common is that while each of these people may have quoted someone else from time to time, they are all people who are more often quoted themselves. Finding your voice and serving as a role model for your constituents is critical to becoming an authentic leader. If you can't find your voice, you'll end up with a vocabulary that belongs to someone else, mouthing words that were written by some speechwriter, or mimicking the language of some other leader who's nothing like you. And people most admire those who best articulate the principles they believe in. You can begin to achieve these aims by exploring the first of the five practices of exemplary leadership: Model the Way. This is the second in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 3 - Inspire a Shared Vision</b>	When the byproducts of a Ben & Jerry's ice cream plant overloaded a local waste treatment plant and nearly had to shut down, administrative assistant Gail Mayville found an unorthodox solution that saved people's jobs, kept the plant open, and jump-started a new and rewarding career. What Gail and thousands of other leaders share is the characteristic of being forward-looking - of being concerned not just about today's problems but also about tomorrow's possibilities. They see something out ahead, vague as it might appear from a distance, and they imagine that extraordinary feats are possible and that the ordinary could be transformed into something noble. Find out how Gail solved the problem - and why leaders need to be able to look beyond the present moment to see an ideal version of the future. This SmartTeam course - which focuses on the third principle, Inspire a Shared Vision, will help you learn to communicate your vision clearly and enlist others in making this dream a reality. This is the third in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Leadership: Part 4 - Challenge the Process</b>	If you keep your eyes open and periodically actually shut your mouth, and you have the courage to turn the mirror around on yourself, it's amazing what you can learn and how you can change things. - Dick Nettell, corporate services executive for the Bank of America. The leaders whose stories we excerpt talk about times when they turned around losing operations, started up new plants, developed new products or services, installed untested procedures, renewed operations threatened with closing, or released the creative spirit trapped inside stifling bureaucratic systems. The personal-best leadership cases were about radical departures from the past, about doing things that had never been done before, about going to places not yet discovered. In many cases, the magnitude of results was in the hundreds of percent. In this SmartTeam course, Challenge the Process, you'll see how leaders understand that change is a constant, and proactive individuals seize the moment and use times of change to create something better than previously thought possible. This is the fourth in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	2	Intermediate
<b>Smart Leadership: Part 5 - Enable Others to Act</b>	In the thousands of cases the course authors studied, they did not encounter a single example of extraordinary achievement that occurred without the active involvement and support of many people. Nor was there a single instance in which one talented person - leader or individual contributor - accounted for most, let alone 100 percent, of the success. Throughout the years, leaders from all professions, from all economic sectors, and from around the globe continue to say, You can't do it alone. Leadership is not a solo act, it's a team effort. This part of the series will teach you about the importance of fostering collaboration (and the methods for doing so), along with ways to empower and strengthen your team. This is the fifth in a series of SmartTeam courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Smart Leadership: Part 6 - Encourage the Heart</b>	Most people rate having a caring boss even higher than they value money or fringe benefits. In fact, how long employees stay at a company and how productive they are there is determined by the relationship they have with their immediate supervisor. This segment in the Leadership Challenge Series covers the last - but in no way least important - practice of exemplary leadership, Encourage the Heart. You'll learn the best ways to recognize the contributions of others and reward those that deserve the appreciation. You'll take a close look at the theory that high expectations lead to high performance, and why you should set the bar higher as a result. When these positive expectations yield results, leaders then celebrate the values and victories in their organizations. Exemplary leaders keep four essential points at the fore: focus on clear standards, expect the best, pay attention, and personalize recognition. Learn how to put these points into practice to stimulate and motivate each individual on your team! This is the sixth and last in a series of courses adopted from the highly respected book, The Leadership Challenge, written by James Kouzes and Barry Posner.	1.5	Intermediate
<b>Smart Management: Methods for Motivating and Mentoring Your Team</b>	Without a skilled captain to steer it safely to harbor, a ship is as good as lost at sea. The same can be said of the business world—without the right people at its helm, a firm is left to flounder on an uncharted course, one that may very well send it drifting into the dismal abyss of financial ruin. Arguably then, it stands to reason that employees are the most important resource within a company. After all, they are the vital crew members who will allow you, the captain, to navigate the corporate boat to safe harbor (i.e., profitability). This interactive online course covers the importance of mentoring employees along with methods that can be used to motivate. Several case studies are introduced to give specific examples of how this information can be put to use with employees and leaders of an organization. This course is intended to review and reinforce motivational and mentoring concepts that you may have used or evaluated in your profession. If you are starting a career as a manager, hopefully some of these concepts will provoke thought about how to motivate or mentor peers or employees in your company.	2	Intermediate
<b>Smart Management: Business Essentials</b>	You know that reality TV show where they drop a bunch of folks on an island in the middle of nowhere and see if they can last 39 days without going all Lord of the Flies? Surviving today's corporate jungle is a lot like that. So what's the secret to achieving success without losing your sanity? Here's a hint: Learn the lingo. This eye-opening SmartTeam course is a must for all business professionals—beginning with an overview of essential business terms and concepts, and outlining the key differences between a satisfied and an engaged workforce. It includes proven techniques for promoting teamwork and overcoming common hurdles in personnel management, as well as mastering the essential principles of customer care and service. The bottom line? At the end of the work day, it's not just one person that makes a difference. It's every member of a company working together toward a common goal. Smart Management: Business Essentials is the first step toward achieving that goal and surviving the daily grind.	2	Intermediate
<b>Smart Management: Coaching for Better Performance</b>	There's no doubt about it. The workplace has changed drastically over the past two decades. In the past, leading an organization meant managing, directing or supervising. The individual in charge was known as The Boss and was responsible for directing all activities and making all decisions. Today's employees, however, do not respond well to bosses. They expect to be treated as full members of a team. Therefore, many managers today find themselves in the somewhat uncomfortable position of being a coach. Unfortunately, they are typically lacking in the knowledge and skills to master their new role. This 1-hour online interactive course is designed to help you become a coach in the very best sense of the word. This course stresses the need for good coaching skills and provides practical suggestions for confronting poor performance by using a Performance Improvement Plan.	1	Intermediate
<b>Smart Management: Data Security</b>	Data security is the protection of information and mechanisms employed to provide assurance that data will remain secure. A data security system includes resources, people, hardware, software, and the infrastructure supporting data protections. This interactive online course discusses the different aspects of data security, including categorization of data and data types, data management, and user and organization responsibility for maintaining data security. Data within an organization is an essential part of how the organization does business, makes profits, acquires its place in industry, and retains employees to perform the work. Determining the level of data sensitivity and structuring a data security system around those needs is imperative for the success of an organization and the security of organizational information.	1	Intermediate
<b>Smart Management: Discrimination in the Workplace for Managers</b>	As agents of their employers, managers need a basic understanding of employment discrimination laws and how they apply in the workplace. There are a variety of both federal and state laws prohibiting certain types of workplace discrimination. The concepts of discrimination, harassment and diversity are all related to the goal of creating a workplace environment where differences among employees are respected and valued. However, there are fine distinctions among the terms. In this interactive course, you will learn how they relate to one another from both a practical and legal perspective. You will also learn about the categories protected from discrimination, types of reasonable accommodations, and best practices to avoid workplace discrimination.	1	Intermediate
<b>Smart Management: Effective Performance Review Practices</b>	Studies show that well over 90% of organizations engage in a formal employee Performance Review (or Appraisal) Process, but the practice is highly varied between companies - and sometimes within a single company - in both the way it is conducted and its effectiveness. In fact, Performance Review is often dreaded by both managers and employees. One reason is that managers often lack skill in objectively evaluating and providing useful feedback to employees. The purpose of this interactive online course is to equip managers to engage in effective employee performance reviews that will help employees understand and maximize their performance. We will also show how employees can best participate in the process. When done effectively, the Performance Review will have a positive impact on the motivation and performance of employees and their managers and will benefit the entire company.	2	Intermediate
<b>Smart Management: Equal Employment Opportunity and Diversity for Managers</b>	As agents of an organization, managers need to not only be aware of all applicable employment discrimination laws, but they also must know how to manage diverse employees in varied workplace scenarios. The purpose of this course is to educate managers about equal employment opportunity and diversity practices. In this interactive course, you will learn the basics of federal anti-discrimination laws, the barriers to workplace diversity, and the best practices associated with diversifying your workforce.	1	Intermediate
<b>Smart Management: Getting the Most out of a Multigenerational Workforce</b>	Times have changed—and so has the workplace. Unlike just a few decades ago, today there are multiple generations of workers at the office, each with their own unique characteristics and expectations. As a manager, it is up to you to find a way to engage and motivate your workers in order to promote success, and the first step is finding out who they are and what makes them tick. This eye-opening course describes in detail the characteristics of the four main groups in today's multigenerational workplace: Traditionalists, Baby Boomers, Generation X and Generation Y. It includes information about their work ethic, work styles, loyalties, and their views on work and the family, and it takes a look at the challenges each generation faces with regard to the current recession. Management practices will also be presented that encourage each generation to fully invest in getting the job done not just well but with excellence.	1	Intermediate

# AEC Complete

Title	Description	Hours	Level
Smart Management: Hiring the Right Talent - Customer Service	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
Smart Management: Hiring the Right Talent - Sales	Hiring the right talent can make a difference between success and failure in your organization. There are major financial, morale and business growth implications when you don't bring on customer focused people. Hiring top talent is both an art and science. In this SmartTeam course, we will focus on best practices and bottom-line evidence that will show you how to hire the best talent. Although this course will be focusing on hiring for a customer service position, the concepts and techniques can be applied to any position.	1	Intermediate
Smart Management: How to Handle Workplace Challenges	Regardless of how much effort an organization puts into creating an efficient and respectful work environment, challenging circumstances always arise. Rather than perceiving these problematic situations as a reflection of a personal or organizational failure, it is more effective to focus on establishing and following clear guidelines to resolve problems and appropriately handle workplace challenges. Whether your organization is currently facing a serious problem, or is seeking to put policies and procedures in place for the future, this interactive online course will guide you in handling the different challenges your organization might face. Instances for intervention including hostile behavior, substance abuse, and criminal activity will be discussed, as well as prevention and mitigation strategies for violation of workplace policies. While the types of challenges encountered in the workplace are too diverse to be discussed in one manual, this interactive online course will cover common types of problematic work situations most employers are likely to encounter. **This course is intended for managers in policy-making roles.	1	Intermediate
Smart Management: Key Skills for Managing & Coaching Your Team	Whether you are a newly promoted supervisor or an experienced manager, you know managing people is a big responsibility. It requires a special skill set. This course will help you develop the skills you need to be successful and to develop successful employees. This interactive online course teaches you how to coach employees through feedback, mentoring, and counseling. The touchy subjects of corrective counseling and employee discipline are covered as well as the methods of planning, conducting, and benefiting from employee meetings. You will find a template for time management for your work and personal life. The course concludes with a motivational and highly informative section, Take Care of Yourself.	0.5	Intermediate
Smart Management: Lawful Hiring Practices	The objective of this course is to help employers and hiring managers in companies be aware of the liability and responsibility they carry in regards to hiring employees. By knowing what is acceptable and unacceptable, companies can be protected from litigation. With a history of wrongdoing against employees, the United States has enacted laws to protect the worker with some of the strictest labor laws in the world. This means that the burden of proof is on the company, not the employee, making the company much more susceptible to legal repercussions. In this course, you will learn about protected classes, diversity, recruiting challenges, employment verification, and legal do's and don'ts.	1	Intermediate
Smart Management: Lawful Termination Practices	There comes a time for every manager when they are faced with the need to terminate an employee. The difficulty comes with ensuring that the company is in a position that prevents any liability on their part for that termination. Unfortunately in today's legal climate, wrongful termination suits are the number one labor lawsuit brought before the courts. The judicial system sees many of these cases, especially when economies experience a downturn and employees struggle to keep their jobs. This interactive online course outlines the criteria for legal termination, and explains how to ensure your company is prepared. Proper procedures need to be in place, and managers need to be knowledgeable of employment laws and the consequences for wrongful termination.	0.5	Intermediate
Smart Management: Managing a Geographically Distributed Workforce	It is becoming increasingly rare in today's business climate for all team members to be located centrally or working from a single office. Whether it is satellite offices, team members working at home, or offsite third party vendors, the workforce of today is more than likely dispersed among a variety of offices in separate locations. In this interactive online course, we will examine the factors that necessitate a remote and often globally distributed workforce. We will also discuss best practices for managing offsite teams and pitfalls to avoid in the process.	0.5	Intermediate
Smart Management: SMART Goals - Setting Effective Targets for Success	Learning how to set effective and relevant goals is the first step in achieving success in any field—goals serve as roadmaps to the future. Just as you wouldn't go on a trip without a clear understanding of where you're heading, setting out on your professional journey without a plan is not likely to give you the results you desire. This interactive, online course discusses how to set goals using the SMART goal template (specific, measurable, achievable, relevant, time bound), and provides tools to help you get where you want to go in your personal or professional life. The purpose of this course is to aid you in selecting appropriate, attainable goals to give you the best chance of success.	1	Intermediate
Smart Management: Successfully Transitioning from Team Member to Manager	Successful transition and successful leadership depends on identifying effective strategies for building a team around you as leader and manager. This interactive online course focuses upon the challenges and key strategies for transition from the position of team member to the role of team leader. During this course, we will explore key theories of career development and transition within the corporate environment, as well as theories about team dynamics and the role of leaders. We will also discuss challenges related to the transition from team member to team leader, and strategic and tactical solutions for successful transition within a corporate team. Career development plans, including how to create them, modify them, and apply them to different career scenarios will also be discussed.	1	Intermediate
Smart Management: The Art & Science of Delegation	Many think delegation is a way to load others with work, hopefully relieving themselves of both some work and, possibly, some responsibility. But that's a narrow and negative perspective on delegation that seldom leads to increased productivity or profitability. The true purpose of delegation is to get more accomplished in less time through the effective utilization of the talent and resources available. Used correctly, delegation allows us to work constantly on our business rather than merely working in it. It tells us when others can do needed activities, faster, cheaper, and better than we can ourselves. The mastery of delegation is the highest form of personal leverage and the ultimate time management tool. It multiplies the number of projects we can effectively work on at once, and also shortens the time between concept and delivery of the product or service to the client or market. This 1-hour interactive online course defines delegation, explains its benefits, and guides the student through the process of delegating tasks and projects.	1	Intermediate
Smart Mental Health: Core Values and Finding a Purpose in Life	If you ever felt uncomfortable in a relationship or out of place in your company but didn't know why, it could be that the person or the corporation has core values that are different from yours. If this situation sounds familiar, or if you'd like to know more about values and how to get clearer on your life's purpose, then this is the course for you. We will guide you to define your core values and your life's purpose, and explore practical ways to create a personal and professional life in harmony with the inner you.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Smart Mental Health: Goal Setting and Visualization Techniques</b>	Goal setting is the foundation of all successful endeavours. When we set a goal, what we are really doing is defining the roadmap of our life. With each goal we set, we establish the path we wish to take towards our objectives.	1	Intermediate
<b>Smart Mental Health: Happiness is a Choice - Keys to Living a Joyful Life</b>	This course will take us on a journey through five core areas of our human experience: the physical, the psychological, the spiritual, the social, and the occupational elements of being human that make up our lives. In each area we will learn about a tried and true pathway leading to greater happiness. For each of these pathways, we will offer tips and tools to help implement strategies to build happy and contented lives.	1	Intermediate
<b>Smart Mental Health: Keys to Successful Parenting</b>	Understanding the common pitfalls of parenting, how to provide constructive discipline, and how to develop a healthy relationship with your child are just a few ways to identify areas for connection and improvement. This course is intended to help you as parents not only define your role and style, but to improve upon problem areas. You will be able to identify with the content and then think about how you can apply it to your own experience. Most parents recognize that this role can be a challenging one and that those who serve in it are often a work in progress. Identifying areas for improvement and understanding what it takes to raise successful children is pivotal. You will get examples to consider what you can do to be more helpful to your children, create a loving and nurturing environment, and help their development in the most effective way possible.	1	Intermediate
<b>Smart Mental Health: Managing Anger and Emotions</b>	The modern workplace is often thought of as a strictly professional, rational, logical environment. Cooperation is key—personal opinions and emotions must be put aside in the name of teamwork, which may be easier said than done! No one can expect to connect with fellow colleagues the way they do their own friends or family members. One crossed word or bad mood can damage corporate relations, sometimes irreparably. The uncertainty of the business environment of today, and resulting stress that follows only adds to the pressure workers feel in performing their level best. Feeling overworked and overwhelmed is natural in the workplace, especially when it comes to dealing with change. The purpose of this course is to illustrate ways you can overcome the emotional barriers you may face in the workplace. This course will guide you through various exercises and give you tips to help you manage your emotions at work so you can perform to the best of your abilities.	1	Intermediate
<b>Smart Mental Health: Reducing Stress and Anxiety</b>	Stress is our body's way of responding to physical, emotional, or mental demands. Although typically associated with negative circumstances, stress can be caused by both good and bad experiences. Our bodies react to stress by releasing chemicals into the blood to give us energy and strength to handle the situation. This evolutionary reaction can be a good thing when stress is caused by real physical danger; however, this survival response can wreak havoc if it builds up without a proper outlet. This interactive online course discusses signs and symptoms of stress, and explains the physical and emotional effects of built up stress, such as pain and anxiety. The course also describes stress management techniques, treatment options, and lifestyle changes to help alleviate stress.	1	Intermediate
<b>Smart Quality: Building Quality Awareness</b>	You expect quality from your vendors and your customers expect quality from you and your organization. In this SmartTeam course we will familiarize you, regardless of your level in your organization, with the meaning of quality, how it is critical, and how to begin to put it into motion in all of your work.	1	Fundamental
<b>Smart Quality: Process Improvement</b>	All work is a process—plain and simple. A process is a series of events, activities, decisions, or tasks that transform inputs into outputs. Processes can be very large, crossing many functions within your institution or organization; or small, existing within a department or unit. Smaller processes exist within the context of larger processes. It is imperative as you start that you are careful in what processes you select for improvement. This interactive online course discusses selecting, monitoring, and improving processes so you will be able to provide your products or services accurately and on time.	0.5	Fundamental
<b>Smart Quality: Systematic Problem Solving</b>	All organizations are challenged by problems that need to be fixed. You can become a master troubleshooter and problem solver. In this interactive online course we will instruct you in successful systematic problem solving, giving you methods and tools that you can use regardless of your position or organization.	0.5	Intermediate
<b>Smart Sales 1: Understanding the Psychology of Sales</b>	Welcome to part one of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 2: Identifying the Decision Maker &amp; Setting Appointments</b>	Welcome to part two of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 3: Securing Appointments &amp; Advancing the Sale</b>	Welcome to part three of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 4: Overcoming Objections &amp; Closing the Sale</b>	Welcome to part four of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 5: Business-to-Business Sales</b>	Welcome to part five of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales 6: The Sales Cycle</b>	Welcome to last part of this six part course designed to help you develop professional sales skills. This course is designed to quickly give you the basic skills, knowledge, and methods you need to start selling fast. Whether you're in retail, technology, manufacturing, or services you'll discover how to start selling like a top professional sales person.	0.5	Fundamental
<b>Smart Sales: Advanced Tele-Prospecting - Closing the Call</b>	Never has so much been written or talked about in prospecting and selling as closing or asking for the sale. Quite frankly, closing is easy and simple. In this eighth course in a 10-part series, you will learn how to implement an effective consultative process that will help you successfully close the call. The purpose of this course is to provide you with simple and effective techniques to move the sale forward and achieve your sales objective.	0.5	Fundamental



## AEC Complete

Title	Description	Hours	Level
Smart Sales: Advanced Tele-Prospccting - Creating Opening Statements	Without a doubt, the opening statement is the most important part of your tele-prospccting call. This third course in a 10-part series helps you develop an effective opening statement that will get more prospects to stop and listen. This course provides you with a process by which to develop an effective opening statement, including templates that you can use as models for those opening statements. By immediately gaining the attention and interest of the decision maker, you will quickly get your foot in the door so you can meet and exceed your sales objectives.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Dealing With Dismissive Objections	One of the most significant components of tele-prospccting is handling knee jerk objections. Decision makers may not want to be bothered, so objections may be tossed out at the beginning of the call to get you off the phone. If you aren't prepared to field these questions effectively, your opportunities to set appointments and sell will be greatly diminished. The purpose of this fifth course in a 10-part series is to help you overcome objections and continue the sales dialogue so that you can achieve your sales objective.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Follow-up Strategies and Tactics	In many ways, the follow-up call is far more significant than the cold call. This is where value is created, where trust is further established with your prospect, and ultimately, where the rationale for buying is formed. Despite the importance of the follow-up, many tele-prospcctors lack skill in this arena. In this ninth course in a 10-part series, we will discuss follow-up strategies and tactics to master the art of follow-up and close more sales. The goal of this course is to provide you with a follow-up strategy to help continue the sales cycle and ultimately close the sale.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Getting Past Gatekeepers	The key to successful tele-prospccting is getting through to as many decision makers as possible. Unfortunately, human and electronic gatekeepers are often used by the decision maker to screen your calls. The purpose of this course is to provide you with strategies and tactics to get past these gatekeepers so you can reach your target and achieve your goals. This second course in the 10-part series covers a variety of methods and techniques that you can test, employ and master to improve your efficiency and effectiveness.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Handling Smokescreen and Authentic Objections	Objections come in all shapes and sizes and some are easier to distinguish than others. While many objections are clear cut indicators of disinterest, others may be more vague and harder to discern. In this seventh course in a 10-part series, we will look at how to recognize and handle ambiguous objections effectively. The purpose of this course is to provide you with various tactics to help understand and manage both smokescreen and authentic objections, ultimately giving you greater confidence in dealing with your prospects and moving the sales cycle forward.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Overview and Pre-Call Planning	This first course in a 10-part series introduces you to the process of tele-prospccting and shows you how to begin using this method to effectively and efficiently mine for prospective clients. This questions-based, consultative approach to tele-prospccting is designed to get the client involved to determine needs, or potential needs. This course is for anyone who uses the telephone to qualify prospects, generate leads, set up appointments, or sell direct. The overall goal of this training series is to provide you with tips, tactics, and processes to maximize your tele-prospccting potential, and increase your success at prospccting by making you more effective on the phone. In short, it is to make you a better prospcctor and salesperson.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Presenting an Offer	Your offer, or sales message, is your opportunity to present your solution to the prospcct and ultimately close the deal. To be effective, your message must be compelling and intriguing, and it must provide a reason for the prospcct to take the next step. This sixth course in a 10-part series discusses how to present an effective offer or sales message. The purpose of this course is to provide you with the skills and techniques to craft and deliver a persuasive sales message that motivates prospects to take action.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Qualification and Questioning	Effective questioning is at the very heart of the advanced tele-prospccting process — it is what separates tele-selling from tele-marketing. Effective questioning is what creates a quality lead, a good appointment, or a very good sale. This fourth course in a 10-part series discusses how to use questioning to identify needs, build rapport, and advance the selling process. The purpose of this course is to provide you with specific skills and techniques so you will question more effectively over the phone.	0.5	Fundamental
Smart Sales: Advanced Tele-Prospccting - Using Email in the Tele-Prospccting Process	There is little doubt that email is one of the primary methods of communicating with a decision maker, so it makes sense to have an email component in your tele-prospccting approach to the marketplace. The trick is to develop a good email that cuts through the clutter so it will be read and remembered by your prospcct. This final course in a 10-part series discusses how to sell more by integrating email into your tele-prospccting process. The purpose of this course is to provide you with specific strategies and tactics on how to use email and voice follow-up effectively, while also providing you with email templates you can use to craft your own personal email message.	0.5	Fundamental
Smart Time Management: 7 Steps to Regaining Control of Your Day	Feeling out of control and overwhelmed by everything you need to accomplish each day? No matter how hectic your schedule appears, you can regain control of your day and increase your daily productive time. How? Effective time management is your tool to design success at work and at home. This interactive online course details a complete, integrated time management system. This system contains just seven steps, which will assist you in developing an effective and efficient method for allocating time and regaining control of your life. In addition to honing your prioritization skills, you will also learn how best to use your reclaimed time and how to periodically reassess your time management process so you can maintain control of your day.	1	Fundamental
Smart Time Management: The 80/20 Rule for Making Every Minute Count	In 1897, Italian Economist Vilfredo Pareto found that 20 percent of any given population, of any country during any time period, accounted for 80 percent of the wealth. This pattern is repeated in many aspects of life, not just wealth. The 80/20 Rule as applied to time management reveals that there is generally a significant imbalance between our efforts and our results. Instead of there being a one-to-one relationship between effort and result, it turns out that 20 percent of our efforts produce 80 percent of the results. Conversely, the other 80 percent of our efforts produce only 20 percent of the results. This 1-hour interactive online course from SmartTeam explores how we can channel our time and effort to get the greatest results with the least amount of effort and stress. It focuses on your individual abilities, and teaches an entrepreneurial time management approach together with creative use of the 80/20 Rule. In other words, it will help you prioritize so that you do most often the things you are best at and enjoy the most. You will learn to strive for excellence in a few things, rather than achieving mediocre performance in many.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Smart Workplaces: Code of Conduct - Ethics Education &amp; Social Media Guidelines</b>	At last - a code of conduct educational program that addresses business and organizational ethics that has teeth but doesn't bite! While you probably know that having a code of conduct is necessary for your business, you may not know the best ways to impart the rules and make sure they are followed by staff - and you may not know the consequences if they don't. A good code of conduct clearly communicates your company's values and imparts knowledge employees can use to make tough calls with confidence in the gray areas of business. This training presents interactive scenarios and activities that challenge employees to apply company values to ethical dilemmas and to resolve issues. But just having a code of conduct isn't enough. You need to track and measure the training's success to optimize your legal protection! This course does nothing less than let you ensure that your workforce understands and has electronically agreed to the company's expectations and standards for appropriate conduct. Its deployment company-wide can help you in the event of a lawsuit by demonstrating that the company took measures to prevent an environment that allowed any form of discrimination.	2	Intermediate
<b>Smart Workplaces: Designing Safe Workspaces &amp; Preventing Injury</b>	Common workplace health and safety issues can take a toll on staff and the company budget, but it doesn't have to be that way. Many of the problems workers encounter on the job are preventable if steps are taken to avoid injuries before they happen. This online course explores methods used to design safe workspaces and examines work-related Musculoskeletal Disorders (MSDs), which are a leading cause of injury in the workplace. You'll also learn specific ergonomically correct techniques for heavy lifting, setting up a computer station and more.	1	Fundamental
<b>Smart Workplaces: Optimizing LinkedIn for Sales Prospecting and Business Networking (ST-0146)</b>	Social networking has become a common part of people's personal and professional lives. Although different social networking tools may be used for different purposes, LinkedIn is specifically designed to connect professionals with one another to make them more productive and successful. The purpose of this course is to show you how you can improve your sales prospecting and business networking through the use of LinkedIn, the most popular business oriented social networking site on the internet. With an ever growing membership currently in the millions, LinkedIn can help sales professionals: Build and maintain a broader network of trusted professionalsGenerate leadsLearn about other companies and their hierarchiesLeverage powerful tools to find and reach the right peopleTap into the knowledge of their network, andDiscover new opportunities This course will explore each of these points and also reveal common mistakes to avoid when using LinkedIn.	0.25	Fundamental
<b>Smart Workplaces: Preparing for a Pandemic Flu Outbreak</b>	What if a third of our employees could not come to work because they were sick - or were caring for sick family members? What if the companies that we rely on to do business - suppliers, staffing companies, even banking - could not take care of our business due to flu absences in their own companies?An outbreak of influenza can cripple a business's productivity if a large percentage of its employees are infected all at once. As the threat of a pandemic flu increases, business managers and HR professionals should take steps now to create and implement a pandemic influenza response plan. If done properly, an influenza response plan can help businesses reduce the risk of a large percentage of absenteeism and maintain crucial operations, as influenza is more widely transmitted. This course will explain the latest CDC and Occupational Safety and Health Administration guidelines, as well as provide checklists and sample communications to help business and HR professionals assemble a pandemic influenza response plan. The training provided in this course will help employers to determine how to avoid adverse effects on other entities in their supply chains while also reducing transmission among staff.	1	Intermediate
<b>Smart Workplaces: Putting Your People First - Personnel Administration</b>	The most important resource available to any organization is people. Organizations are made of people, and an organization cannot fulfill its intended mission without good employees. These employees need effective leadership to accomplish organizational goals and objectives. A good leader knows how to hire and keep good employees by following the rules and regulations that govern employment. This interactive online course will discuss several personnel issues of interest to all organizations. Whether you have 10 employees or 200 employees, just about every issue discussed in this SmartTeam course will, in some way, apply to your business. Issues discussed in this course include: Personnel Administration (Management and Leadership, Hiring and Firing Practices, and Employee Manual/Handbook)Sexual HarassmentEqual Employment Opportunity (EEO)Drug Free WorkplaceThe Americans with Disabilities Act of 1990 (Including 2008 amendments)	2	Fundamental
<b>Smart Workplaces: Responsible Social Media for Team Members</b>	It has become increasingly clear that social media is not just a fad. It is instead, not only a massive change in the way we socialize with others in a personal setting, but also the biggest shift in how we conduct business since the arrival of the Internet. Social media is quickly altering every aspect of corporate operations, such as hiring practices, training, marketing, and even risk management. The purpose of this course is to introduce you to social media, explore how we use social media personally vs. social media use in a business setting, how its use continues to evolve in the workplace, the benefits of social media, and of course the risks it can present to you personally and to companies.	0.5	Fundamental
<b>Smart Workplaces: Understanding the Family Medical Leave Act (FMLA) (ST-0158)</b>	There are times when life situations demand attention and people must take time away from work. An individual may be diagnosed with a serious health condition, welcome a new child into the family, or become a caregiver for a family member, so it is good to know what options are available if it becomes necessary to take a leave of absence. The Family Medical Act (FMLA) allows employees take reasonable unpaid leave for certain family and medical reasons so they can attend to the needs of family while also balancing work responsibilities. The purpose of FMLA is to accommodate the needs of employers and employees while minimizing the potential for employment discrimination on the basis of gender, and promoting equal opportunity employment for men and women.	0.5	Fundamental
<b>Smart Workplaces: Webinars - Conducting a Web-based Presentation (ST-0145)</b>	Delivering a successful presentation over the web is absolutely achievable. The key is knowing the rules and the tools that will facilitate the accomplishment of your goals. The purpose of this course is to help you successfully deliver dynamic and engaging web-based presentations. This will begin with a clear understanding of what a web-based presentation is and how it differs from other web-based activities, like web meetings and conference calls. Then, we'll explore common terminology related to conducting a web-based presentation as well as the various web tools available for the delivery of those presentations. To help you with the design, preparation, and delivery of your presentations, we'll also explore tips and tricks for engaging your audience, and how to prepare for the unexpected.	0.5	Fundamental
<b>Soils and Foundations: The Low Down on Dirt</b>	Soils issues and ineffective water management methods create serious problems with foundation systems and structures. Understanding the core soil problems faced in the construction industry and methods to overcome them allow you to avoid the associated issues. This interactive online course will teach you about some of the most common issues found with soils and how to overcome them. You will also learn about ICC codes that govern site inspections. Additionally, you will learn about geotech reports and best practices when assessing soil conditions.	2	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>Solar Panels for Home Inspectors</b>	This course applies to the application and evaluation of solar panels for water heaters, pools and spas, and photovoltaic cells. It will give you a brief overview of how they work and how they are evaluated, including installation and components. We will discuss the different kinds of solar panels found and how they connect to various system components. We will also identify potential and common problem areas with these panels, typically system defects. Terms for intelligent report writing will be part of this class, and how electricity is generated will also be explained.	2	Fundamental
<b>Sources of Electricity, Part 1</b>	Sources of electricity typically refer to the different types of fuel or power used to generate electricity. With the exception of solar power, these sources all involve spinning a copper wire between magnets. This course describes how electricity is produced through electrochemical production, magnetic induction, and the photoelectric effect.	1	Intermediate
<b>Space Planning: Design Fundamentals</b>	The search for beauty probably begins with the story of mankind itself, yet undertaking the design of an office or departmental interior today can be a daunting task. Any decisions we make concerning layout, color, wallpaper, flooring, furnishings or lighting could have a lasting effect on an organization and its people. It is not surprising, therefore, that as space planners and designers, we shoulder a heavy burden of responsibility; we owe it to our clients to give them the best possible solutions that fulfill their needs. This 2-hour interactive online course should be used as a basis to create a space that is both functional and aesthetically pleasing. This course of Design Fundamentals is broken into three sections: Functional & Aesthetic Aspects Design Principles Elements of Interior Design This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Space Planning: Design Methodology</b>	Today's contemporary office environment is often a sophisticated and intricate ecosystem of many interrelated elements and sub-systems, in which various individuals occupy space. These individuals have special needs, and the diligent space planner is required to address these needs. This 2-hour interactive online course should be used as a basis to recognize such influencing factors as evolving computer and communications technologies, psychosocial elements of the workplace and planning for future expansion and growth. This course of Design Methodology is broken into five sections: Programming Phase: Creating the Brief or Program Schematic Design Phase: Concept Development Design Development Construction Document & Bidding (Tendering) Phases Contract Administration: Execution & Supervision Phase Feedback and Post-occupancy Evaluation & Additional Services This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Space Planning: Furniture and Furnishings</b>	The workforce is changing under the onslaught of modern technology, and with it the office landscape. As we settle into the information age, the increase in population of white-collar workers continues to outpace that of other segments of the labor force. The higher level of training required for these upper-level positions has manifested itself in an increase in employee absenteeism and turnover. This is beginning to pose serious financial and productivity problems to the corporate world. This 2-hour interactive online course should be used as a basis to plan a workplace environment that will facilitate greater interaction between people and their support facilities. This course of Furniture and Furnishing is broken into six sections: Main Furniture Styles The State of the Furniture Industry Today: Part I The State of the Furniture Industry Today: Part II Fabrics & Fabric Selection Recent History - The Leap Forward Flooring & Wall Treatments This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
<b>Space Planning: History and Overview</b>	In attempting to study the early historical development and evolution of space planning and interior design, one needs to simultaneously draw upon and understand the interrelationships of other elements and disciplines, such as architecture and the decorative arts. This also includes ornamentation and furniture, which historically followed the development of architecture. This 3-hour interactive online course should be used as a basis for a better understanding of the lines of development and evolution that led to the current status of our own development, and to correct our myopic vision regarding our design inheritance. This course of History and Overview is broken into five sections: Space Planning, Furniture, and Design in Antiquity Greece & Rome Middle Ages & The Renaissance The Baroque and Rococo & Neoclassic Period and 19th Century Revival Styles Recent History - The Leap Forward This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	3	Fundamental
<b>Space Planning: Security Issues</b>	In today's built environment, security has taken on a new meaning. Terrorism as well as natural disasters usually strike with little or no warning. Terrorism in particular is now a recognized international phenomenon against which governments need to institute protective measures. It is hardly surprising that in the wake of the gruesome 1995 Oklahoma City bombing and the September 11, 2001 terrorist attacks on the World Trade Center and the Pentagon, the issue of security in office buildings took on a new imperative. This 1-hour interactive online course should be used as a basis to balance society's need for security with traditional and psychological values and spiritual needs. This course of Security Issues is broken into two sections: Types of Security Threats, Defining Security Needs and the Role of the Space Planner & Methods for Improving Safety and Security Egress Planning and Emergency Management, The Parking Problem, New GSA & Legal and Liability Issues This course contains downloadable PDF files which require Adobe Acrobat. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
SPCC Inspections	The purpose of the EPAs Spill Prevention, Control, and Countermeasure rule is to prevent oil contamination of navigable waterways and adjoining shorelines. Facilities which store or handle sufficient quantities of oil are required to create an SPCC plan, which includes inspection and testing procedures and schedules. The purpose of SPCC inspections is to prevent oil discharges due to container and equipment failures. Personnel conducting the inspections are trained to look for signs of corrosion, leaks, brittle fracture, overflows, and other problems.	0.5	Intermediate
SPCC Run-On and Runoff	The purpose of the EPAs SPCC rule is to prevent oil contamination of navigable waters and adjoining shorelines. Facilities which store or handle large quantities of oil are required to create an SPCC plan whose purpose is to prevent, control, and deal with oil discharges. One way these facilities can unintentionally discharge oil to waterways is with runoff. To prevent this, they can prevent run-on from reaching equipment with the potential for oil discharges, and also prevent oil-containing runoff from leaving the facility. This course describes the containment measures that can be used to accomplish these goals.	0.5	Intermediate
SPCC Secondary Containment	At facilities regulated by the SPCC Rule, all containers, equipment, and areas with the potential for oil discharges are subject to secondary containment requirements. Affected equipment and areas must have appropriate containment that is able to contain the most likely quantity of oil that would be discharged until it can be cleaned up. The original containers, equipment, and piping serve as the primary containment, while the secondary containment serves as backup protection against spills, leaks, and primary containment failures. This course describes the secondary containment that can be used to prevent oil discharges.	0.5	Intermediate
Speed and Space Management	Speeding is one of the contributing factors in a large percentage of crashes. Not only does speeding above the posted speed limit increase your risk of being involved in a crash, it also increases the severity of the crash. High speed crashes are more likely to result in a fatality or injury compared to lower speed crashes. This course will identify why it is important to manage your speed and space around your vehicle and describe strategies for effective space management.	0.25	Intermediate
Spill Prevention, Control, and Countermeasures	When oil is spilled, it can endanger public health and the environment, as well as cost millions of dollars in clean up and disposal. To prevent oil contamination of navigable waterways and adjoining shorelines, the U.S. Environmental Protection Agency created the Spill Prevention, Control, and Countermeasure rule. Having a spill prevention plan in place is among the most effective and efficient tools in preventing environmental contamination. This course will discuss spill-related pollution, spill prevention techniques, appropriate procedures for controlling a spill in the event that one occurs, and countermeasure techniques that can be taken to help comply with federal regulations.	0.5	Intermediate
Steam Pipe Safety	Steam is used around the world in many different ways. In industrial environments, it is commonly used for power generation and in heating and drying applications. When used properly, steam is one of the cleanest, most efficient, and safest forms of energy in use. However, employees should be prepared and aware of the hazards present when working around steam pipes in order to avoid accidents and injuries. This course describes the hazards presented by steam pipes, how to prevent them, as well as how to properly inspect, insulate, and label steam pipes.	0.5	Intermediate
Steam System Basics & Performance Improvements	There are three principal forms of energy used in industrial processes: electricity, direct-fired heat, and steam. Steam provides process heating, pressure control, mechanical drive, and component separation, and, is a source of water for many process reactions. Steam has many performance advantages that make it an indispensable means of delivering energy. This 2-hour interactive online course describes the basic steam system components, outlines opportunities for energy and performance improvements, and discusses the benefits of a systems approach in identifying and implementing these improvement opportunities. This course is based on the Department of Energy's Improving Steam System Performance: A Sourcebook for Industry. The first section of the course describes steam systems using four basic parts: generation, distribution, end use, and recovery. It is recommended for users unfamiliar with the basics of steam systems, or for users seeking a refresher, a brief discussion of the terms, relationships, and important system design considerations is provided. The second section discusses important factors that should be considered when industrial facilities seek to improve steam system performance and to lower operating costs. This section also provides an overview of the financial considerations related to steam system improvements. Additionally, this section discusses several resources and tools developed through the U. S. Department of Energy's (DOE) BestPractices Steam activities to identify and assess steam system improvement opportunities. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
Steam Turbine Power	Do you know how the steam turbine is such a vast improvement over the reciprocating steam engine? This 1-hour interactive, online course describes the basic principles of steam turbines. Vector diagrams are used to explain the dynamics involved in impulse and reaction turbine stages. Several pictorial presentations are included, which clearly illustrate the various stages and turbine configurations. Also, classifications by stage design, steam supply and exhaust conditions, casing and shaft arrangement, direction of steam flow, and numbers of exhaust stages are presented and described.	1	Intermediate
Steel Erection Safety	Steel erection involves assembling and connecting steel beams to form a structural frame for buildings and bridges. There are many obvious hazards associated with lifting large, heavy steel members and working at heights. According to the United States Bureau of Labor Statistics, an average of 15 ironworkers die each year in work related accidents. Precautions should be taken to prevent injuries during the construction, alteration, and/or repair of single and multi-story buildings, bridges, and other structures where steel erection occurs. This module provides hazard awareness information to prevent the most common incidents.	0.5	Intermediate
Stefanic et al - A Dave Gibson Metes and Bounds Case	This 2 hour interactive online course presents ONE interesting land boundary case that is particularly instructional as to the proper application of the principles of boundary location for METES AND BOUNDS parcels. It introduces many of the principles of boundary surveying in a systematic fashion. The problem statement will suggest alternate approaches, principles, and solutions. You must solve the case according to what you think is the proper application of survey principle. You will then compare your solution with DAVE GIBSON'S 'best practices' solution which incorporates the correct application of boundary location principles. Defense for the 'best practices' solution will be given for consideration and further learning by the attendee. If you love to discuss tough boundary location situations, then you will love this case and learn something new. You will also learn other viewpoints for your consideration. The beginner can benefit from the instruction they give as much as the experienced practitioner. This course is a portion of the longer 6 hour course titled 'Dave Gibson's All Star Metes and Bounds Boundary Cases' also offered on RedVector.com. This course includes a multiple-choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
Stop When Unsure	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the Stop When Unsure human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
Storage and Handling of Category 1 and 2 Flammables	GHS Category 1 and 2 Flammable liquids have flash points below 73.4 F (23 C), which means that they produce vapors that can ignite and burn at normal working temperatures if an ignition source is present. Their ability to self-ignite and to explode under certain conditions make them particularly hazardous. To safely store and handle flammable liquids, read and understand their labels and safety data sheets, and follow the best practices and regulations included in this course and established for your worksite or location.	0.5	Intermediate
Storage and Handling of Category 3 and 4 Flammables	Category 3 and 4 flammables, previously identified as combustibles, have higher flash points than category 1 and 2 flammables, which means that they require higher temperatures to produce vapors that will ignite and burn if an ignition source is present. To safely store and handle combustible liquids, make sure you read and understand their labels and safety data sheets, and fully understand their hazards. Also follow the combustible liquid storage and handling best practices in this course and for your workplace.	0.5	Intermediate
Storage and Handling of Corrosives	Corrosives are substances that damage or destroy other substances on contact. Most are strong acids, strong bases, or concentrated solutions of weak acids or weak bases. To safely store and handle corrosives, read the container labels and safety data sheets, and follow the requirements and precautions they contain. Also follow the storage and handling best practices for hazardous chemicals and corrosives for your workplace and listed in this course, and keep an accurate inventory at all times.	0.5	Intermediate
Storage and Handling of Pesticides	Pesticides are used in many different applications to prevent, destroy, repel, and mitigate pests. A pest can be any plant or animal that endangers our food supply, health, or comfort. Because pesticides are toxic, they are inherently hazardous. To avoid their potential hazards, always review and follow the recommendations and precautions listed on pesticide labels and in SDSs, and adhere to the best practices presented in this course, plus any that have been established for your workplace.	0.5	Intermediate
Stormwater Discharges from Construction Activities	Stormwater discharge from construction activities can have a significant impact on the water quality of rivers, lakes, and coastal waters with pollutants like sediment, debris, and chemicals. Stormwater discharges from construction activities that impact one or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. This two-hour course discusses the importance of stormwater controls on construction sites as well as a detailed look at specific construction-related pollutants. This course also provides participants with an overview of the new NPDES 2012 Construction General Permit (CGP), which is an update to 2008 CGP. In order to implement the new Effluent Limitations Guidelines and New Source Performance Standards for Construction and Development point sources (C&D rule), construction site operators must meet new restrictions on erosion and sediment control, pollution prevention, and stabilization.	2	Advanced
Stormwater Harvesting: A Green Concept	Everyone can't stop talking about ways to reduce our footprint on our planet. Engineers have a unique opportunity to aid in this effort when designing a project and one of those ways is through stormwater harvesting. Historically, stormwater has been collected as quickly as possible and conveyed away from the site. However, with harvesting stormwater, you collect and store the water on the project site, infiltrating as much of the water as possible. This allows the post-development conditions to more closely mimic the pre-development conditions, reduces the size of downstream structures, and treats stormwater as a resource to be utilized rather than a problem to be removed. It reduces the hydrologic impact of urbanization. This interactive online course takes a close look at the concept of stormwater harvesting. It describes a process for evaluating site characteristics and developing integrated designs in which water harvesting enhances site efficiency, sustainability, and aesthetics. The course includes reviews of design examples for a subdivision, a commercial site, a public building, and public rights-of-way.	3	Intermediate
Stormwater Management: Low Impact Development (LID)	Several innovative design alternatives such as bioretention, on-lot treatment, porous pavement and green roofs have been developed in an effort to help combat the significant stormwater problems produced by traditional development methods. A number of these methods fall into the category Low Impact Development (LID) which focuses on water resource and natural resource protection. This 3-hour interactive online course describes a number of the LID methods that have been proposed. It includes information on applicability, design considerations, limitations, maintenance considerations and pollutant removal effectiveness of these methods. The course is based on guidance provided by the US EPA.	3	Intermediate
Stormwater Pollution Prevention	Stormwater runoff is the result of precipitation created by rain or snowmelt flowing over any exposed surface, such as equipment, roofs, roads, and pastures. As the water flows over urbanized and industrial areas it has the potential to pick up a number of contaminants like oil, sediment, chemicals, and litter. This water is then transported to nearby waterways. Polluted stormwater draining from urbanized areas is one of the leading causes of water pollution in lakes, streams, and oceans. This course describes the legal provisions related to stormwater pollution prevention as well as structural and operational best management practices at facilities.	0.5	Intermediate
Storytelling for Business	Use the power of stories to connect with your team and your customers. Storytelling is a powerful tool you can use to improve presentations, share a vision, sell products, and connect with customers and colleagues. Join national award-winning storyteller Andy Offutt Irwin and leadership guru Kelly Vandever as they show you how to create, organize, and use your own personal and business stories.	1.25	Fundamental
Strategic Brand Management	Effective brand strategy necessitates taking a pan-company perspective to understand the organisation's competencies, identify new opportunities and leverage the advantage of corporate culture to deliver the brand promise. Brand success does not result just from focusing on customers, but rather from adopting a more balanced perspective by addressing stakeholders. In an era when it is easy to copy what a brand can deliver (functional values) it is more difficult to copy how the brand is delivered (emotional values). This session will address how by looking inside and outside an organisation brands can grow and be sustained. It will open by presenting a model to strategically grow and sustain brands, 'From brand vision to brand evaluation'. After explaining the model, the different elements of the model will be explored to show how the model can be used to develop valuable brands.	2.92	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Stress &amp; Change Management for Design and Construction Professionals</b>	Stress can be defined as a chronic imbalance of the autonomic nervous system (ANS). This 4-hour interactive online course discusses the dangerous effects of stress and how to control stress through a Stress Management and Relaxation Training Program (SMART). This course is divided into three parts, providing the student with a background study of stress, reasons why it is a problem and practical tested information and techniques concerning stress. These techniques can improve the quality and, very likely, the length of your life. There will be a test included at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental
<b>Stress Management and Prevention</b>	Employees constantly encounter conflicts with bosses, changing responsibilities, financial pressures and many other situations that can lead to stress. Workplace stress can negatively affect a company due to decreased attendance, proficiency, and productivity. This course will help workers identify potential stressful situations, become aware of the effects stress can have on their health, relationships, and careers, as well as list ways to manage stress.	0.25	Intermediate
<b>Stronger Together: Delegation and Task Management</b>	YOU CAN'T DO IT ALL! It's time to delegate. Delegation is perhaps the most important skill for a manager of people to learn and master. You can't do everything yourself, and you'll go crazy if you try! At the same time, delegation is challenging and it takes both commitment and an investment of time to get it right. The good news is, once you start delegating well, you'll be surrounding yourself with capable and empowered team members. This course follows the story of child prodigy, Brianca, and Play All Day, the toy company she started with children like herself. Brianca learns quickly that the only way to accomplish her goals is to delegate well to those around her. Watch and learn as the Play All Day team grows together into a high-functioning team where each member feels valued and important. The course finishes with a bonus module on task management tools to help you keep track of your team's work. By the end of this course, you'll be inspired to go forth and delegate!	0.5	Fundamental
<b>Structural Design Philosophies ASD &amp; LRFD</b>	Structural engineering design philosophy is based on determining the demand on an element and designing that element with the capacity to withstand that demand. There are two basic approaches to developing the demand; LRFD (Load Resistance Factored Design) and ASD (Allowable Stress Design). Historically, design of different materials (wood, steel, concrete and masonry) has used either ASD or LRFD. This interactive, online course will look at the origins of the two approaches, discuss traditional uses of ASD and LRFD and their safety implications. We will also investigate the differing load combinations as defined in the International Building Code®. Understanding these approaches is an essential element of a life safe design process.	1	Intermediate
<b>Structural Insulated Panels (SIPs)</b>	Structural Insulated Panels (SIPs) are a new sustainable structural panelized building material that can be used for roofs, floors, and wall panels. This course will examine various uses and structural limitations on the materials. An exploration of code requirements and constructibility will be included. Design examples will illustrate cost effective approaches to incorporating this new sustainable material. ATTN: This educational offering is recognized by the Minnesota Department of Labor and Industry as satisfying 1 hour of credit toward the required continuing education.	1	Intermediate
<b>Structural Masonry Materials</b>	Did you know that masonry design is rarely taught in college design courses? Practitioners must research how to use this material. This interactive online course will focus on masonry materials, their structural properties and how these masonry is used in everyday designs for buildings, foundations, and landscaping. We will also discuss how masonry is often used for building foundations and exterior walls, for fire separation walls on building interiors and used in landscaped and terraced exterior walls. This course is intended to close the knowledge gap and provide a background in the use of masonry materials in design.	1	Intermediate
<b>Structural Steel - An Introduction</b>	Are you faced with a project that requires an understanding of structural steel? Do you know the standard steel shapes and how they are connected to erect a building? What is that ASTM specification on the Mill Cert and how does it apply to steel selection? When should you choose structural steel over other materials? This course introduces the student to the basic fundamentals of structural steel.	1	Fundamental
<b>Stucco in Home Building for Home Inspectors</b>	This presentation applies to the application of stucco and bath on exterior walls and ceilings only. We will cover the different types of Stucco applications, such as on wood frame and concrete block houses and with EIFS applications. You will learn how to properly install metal lath and identify potential problem areas in installation. We'll show you critical areas to investigate and not only what to report, but how to report it. Examples of issues and defects will be presented.	2	Fundamental
<b>Substance Abuse Awareness</b>	Drug addiction is when an individual is involved in compulsive drug seeking and use, regardless of any negative health or social consequences. This compulsive drug use can cause employees to be more likely to miss work, be less productive, or even be involved in on-the-job accidents. This course raises awareness by discussing the effects of different types of drugs and alcohol as well as how to recognize and deal with symptoms of abuse.	0.5	Intermediate
<b>Successful Hiring</b>	Successful Hiring will show you the guidelines and procedures that will dramatically increase your percentage of successful hires. This course will provide you with an understanding of the key steps you should follow in the hiring process; what factors you should take into account when hiring someone; how to pre-screen potential hires; what you legally can and cannot do when hiring an employee; how to advertise for the position; and how to conduct a meaningful interview.	1.25	Intermediate
<b>Successful Negotiation</b>	One of the more valuable skills to have in life and in business is the ability to negotiate effectively. After all, a successful negotiator can generate valuable returns and preserve relationships in the process. In Successful Negotiation, you'll get a comprehensive overview of how to be an effective negotiator. You'll learn that negotiation is not all about defeating your competitors, but rather that negotiation is about reaching a mutually beneficial solution that keeps everyone happy. This course contains all the essentials you need to become the best negotiator you can be in both your professional and personal life.	1	Intermediate
<b>Successful Termination</b>	Designed specifically for managers to teach them how to handle those potentially awkward times when it becomes necessary to pink slip someone. More importantly, managers are provided with a number of helpful suggestions for meting out employee discipline. When the process is followed, it gives the employee multiple opportunities to stop or correct the improper behavior that would otherwise lead to termination and that way, everybody wins. If termination is inevitable, managers need to understand the legal concepts and terminology connected with termination to apply actions that will lead to rightful termination. Study all the ins and outs to successfully terminate an employee.	1.25	Intermediate
<b>Supported Scaffold Safety</b>	This course covers some of the more important OSHA requirements for supported scaffolds, as well as basic safe practices for working on or near these scaffolds. It is intended as an introductory or refresher course for construction and general industry workers who will be working on or near scaffold systems.	0.5	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Supporting Change: 01- The 3 Phases of Change</b>	Understand the three phases of change and what to expect in each phase.	0.08	Intermediate
<b>Supporting Change: 02-Reactions to Change</b>	Identify the common reactions to change and strategies to best handle each type of reaction.	1	Intermediate
<b>Supporting Change: 03- Your Path to Supporting Change</b>	Learn and apply the five-step process for helping your team through changes in the workplace.	1	Intermediate
<b>Supporting Change: 04-Mastering Supporting Change</b>	Practice Supporting Change in a full scenario situation.	1	Intermediate
<b>Supporting Change: 05-Supporting Change Health Check</b>	Test your ability to apply Supporting Change concepts in this skills-based scenario assessment.	1	Intermediate
<b>Surge Protection</b>	Power surges are a serious ongoing problem causing major damage in the U.S. including losses of data. The solution is surge protection. You can be a successful provider of that solution. First, you need to know what a surge is, what causes it, and the best technology to protect against it. This webcast will teach you about surges so that you can understand what you are dealing with. This course will also introduce you to the types of protection available as well as installation recommendations.	2	Intermediate
<b>Surveying Essentials</b>	Where was that property line? Do you see the marker? Surveying is used to produce precise descriptions, such as surveys and maps, of surface features of the Earth. Surveying essentials can be useful for engineers, architects, and contractors. This interactive online course covers the basics of surveying and basic principles used in land surveying, establishment of property lines, positioning of buildings, roads, pipelines, etc. Surveying terminology as well as routine calculations and techniques for making field notes are covered in this course. This course is primarily for those not acquainted with surveying and is intended to provide you with an awareness of surveying essentials.	1	Fundamental
<b>Surveying Riparian and Littoral (Water-Related) Boundaries</b>	Imagine if the boundary you surveyed was constantly moving. Ambulatory water boundaries - boundaries that are subject to change due to the nature of riparian or littoral action - present some of the most difficult and time-intensive property location issues that a surveyor may encounter. In this interactive online course, you will learn about shoreline changes, the effects of inland accretion or reliction, erosion or inundation changes and the effects of avulsion (the process of sudden detachment or addition of land), navigability, and how these actions may affect property boundaries. You will also review the basic principles of boundary law that apply to riparian surveys.	1	Intermediate
<b>Sustainable Building Technology</b>	This course covers key essentials in sustainable building technology, primarily in the areas of lighting, hvac, and plumbing. Sustainable technology and design seeks to reduce negative impacts on the environment, and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. Design and construction of buildings and related infrastructure create major direct and indirect impacts on the environment.	2	Intermediate
<b>Sustainable Design: Eco-efficiency of Roofing Insulation Systems</b>	This 1-hour interactive online course explores several popular roofing insulation systems - Expanded polystyrene (EPS), Polyisocyanurate (Polyiso), Extruded polystyrene (XPS), and Sprayed Polyurethane Foam (SPF) - and discusses the influences each one has on sustainable design. It is divided into the following sections: Sustainable Development Insulation Systems Technical Aspects Environmental and Economic Aspects Appendix The course begins with an introduction to sustainable development, compares different plastic insulation systems, then follows up with some technical points on each system. Lastly, eco-efficiency analysis is explained and the environmental and economic aspects of each system are discussed.	1	Fundamental
<b>Sustainable Sites Initiative and the SITES® Rating System</b>	How are you planning on the development of your next site? Have you planned on how you can maintain a healthy ecosystem on your site? This interactive online course introduces course participants to the Sustainable Sites Initiative (SITES®), which is an interdisciplinary effort and framework for the SITES® Rating System based on the concept of ecosystem services, or the benefits that people enjoy from healthy natural systems promoting sustainable land development and management practices. This course includes a discussion of the history and participating entities of the SITES effort. This course will also provide an in-depth study of SITES® Rating System national guidelines and performance benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection for sustainable land design, construction and maintenance practices. This course will conclude with case studies of certified sites fostering resiliency, ecosystem services, human health, materials, soils/vegetation, and water.	2	Fundamental
<b>Sustainable Solutions: Air Pollution</b>	Welcome to the course Sustainable Solutions: Air Pollution. In this course we will explore the relationship between air pollution and site development. Major pollutant sources and their impacts will be discussed along with strategies for reducing embodied energy and creating favorable microclimates that benefit the site and surrounding area. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	2	Fundamental
<b>Sustainable Solutions: Human Health and Well-Being</b>	This course emphasizes the importance of using site design to increase physical activity within a community and provides strategies for doing so. It addresses the subject of maintaining positive mental health through the integration of natural landscapes. Strategies for implementing opportunities for social interaction among adults and spontaneous play among children are also discussed. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Sustainable Solutions: Invasive Species</b>	A foundational principle of an ecological education is the notion of a species' native status. The idea has to do with where a species evolved and was able to establish without the aid of humans. At the other end of the spectrum, an invasive species is defined as one that is nonnative to a particular ecosystem and whose introduction into that system causes or is likely to cause economic or environmental harm or harm to human health. In this course, we will learn about explore the characteristics of an invasive species and cover methods of how to control and prevent invasive species, such as encouraging high-diversity plant communities, limiting habitat fragmentation, maintaining a healthy disturbance, minimizing resource input, and utilizing an Integrated Pest Management (IPM) plan. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Loss of Biodiversity</b>	Biodiversity refers to the richness and distribution of species living in a given area. This course will deal with strategies to effectively mitigate negative impacts to habitat and to restore damaged or degraded natural systems on-site. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Urban Flooding and Water Pollution</b>	As the U.S. was discovered and populated, people located their families and businesses near water. Living near water brings many opportunities and some inconveniences. In this course we will review some basics about flooding and water pollution as well as explore some specifics about these catastrophes and the sustainable solutions we can employ to prevent them. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Solutions: Water Shortages</b>	Over the next forty years, the global population is expected to increase from 6 billion to an estimated 9 billion, yet the world's water supply is constant. Only 3 percent of the global water supply is fresh; the majority of it is locked in ice or stored deep in the earth, making its extraction very expensive. The remaining 97 percent is found in the oceans and is too salty for human consumption, irrigation, and industrial uses. Water from the oceans can be processed; however, desalination is an energy-intensive practice. In this course we will explore site strategies for reducing water waste and recharging groundwater supplies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>Sustainable Urban Design: High Speed Rail</b>	High Speed Rail is an increasingly popular means of rapid passenger transit, capable of speeds up to 250 miles per hour. As demand for more efficient, eco-friendly means of mass transit increases, so does the appeal of high speed rail as a more prominent means of travel in the United States. This 1-hour webcast discusses key concepts of High Speed Rail and compares it with other popular modes of transportation.	1	Intermediate
<b>Swimming Pools: Coordination of Architects &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential that the design team members know how to coordinate their own plans, lest holes develop in the construction documents. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Coordination of Contractors &amp; Building Trade Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental



# AEC Complete

Title	Description	Hours	Level
<b>Swimming Pools: Coordination of Engineers &amp; Pool Design Professionals</b>	Whether for recreation, training, or therapy, swimming pools can have a multitude of designs. No matter how large or small, how complex or simple, the design and construction of the swimming pool will entail: Civil design, grading, drainage, parking and utility extension Mechanical designs for heater venting, waste water discharge, and sometimes heating and air conditioning for a natatorium Safe ventilation of mechanical spaces Landscape construction for planters, lighting, decking, walkways, fencing and irrigation Structural designs for supporting foundations including piers Geotechnical concerns for soil stabilization and high water table Architectural designs for restrooms, concessions, offices and support buildings and ADA access to the site This 1-hour online course considers how the construction of swimming pool and aquatic features involves almost all the other building trades on the architectural/engineering design team; therefore, it is essential the design team members know how to coordinate their own plans lest holes develop in the construction documents. A separate course, Coordination of Architects & Pool Design Professionals, has been prepared for coordination with the Architect. This course will be directed to the other design professionals, primarily engineers and landscape architects, on the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Swimming Pools: Introduction to Aquatic Design &amp; Construction</b>	Most architects, landscape architects, civil and mechanical engineers, construction managers, general contractors and their clients only have infrequent encounters with projects containing swimming pools or other aquatic features. College undergraduate and graduate level studies rarely address the subject of swimming pools at all. As a result, most designers and builders have never had to develop the necessary resources in-house for design and construction, and have sometimes relied upon less than reliable sources of information during their project programming. This 2-hour online course will provide the design team members with an overview of the specialized language of pools, and an improved understanding of the problems encountered in aquatic design. Later courses in this series will develop design criteria, coordination issues, and construction methods. This initial course is intended to expand the knowledge-base for non-aquatic designers and improve their communications with aquatics specialists who only occasionally join the rest of the design team. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Swimming Pools: Mechanical and Hydraulic System Design</b>	This 2-hour online course is intended to provide the engineer with basic understanding of hydraulic systems design for swimming pools. Our design process will be cumulative, combining the physical elements of pool design, the regulations governing swimming pools, and engineering criteria all into one process. As they say, you don't want to know how sausage is made! While the engineer may recognize the simple formulae used, he or she may not be familiar with how swimming pools work in the first place. It is the expressed objective of this course to remedy that lack of information and put all that stuff learned in engineering school to work designing pools that are not only fun but safe. Prerequisite Prior to taking this course students should have a passable knowledge of basic and applied fluid mechanics at the college level and/or extensive field experience in the installation and operation of closed-loop pumping systems. The course is not a masters thesis in mechanics, dynamics or thermodynamics. It is a straight forward application of basic fluid mechanics to an everyday problem. If you are looking for superior academic analysis, formula derivation and integral calculus, you're living out a recurring nightmare of mine and are in the wrong classroom! Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Symbols, Standards, and Schematics</b>	One way in which electrical components are identified in drawings is by the use of schematic symbols. A schematic symbol either represents a single component in an electrical circuit, such as a pushbutton or motor, or a part of a component, such as with relays and starters. This course covers component representations, component abbreviations, electrical standard organizations, blueprint layout, and blueprint styles.	0.25	Intermediate
<b>Synchronous Motor and Controller Maintenance</b>	Synchronous Motor Maintenance Power factor correction; Constant Speed under varying load; High efficiency; High torque at low speeds; Low Maintenance; Performance stability and Compatibility with Variable Speed Drives are among the many reasons for the popularity of Synchronous Motor Applications throughout industry. Like all manufactured products, however, Synchronous motor systems must be monitored and maintained or the performance benefits will diminish or disappear. This lesson focuses on the routine maintenance requirements for Synchronous motors and their controllers.	1	Intermediate
<b>Tanker Rollover</b>	Approximately 1300 tanker truck rollovers occur every year. These rollovers are the reason behind one in four accident-related truck driver deaths. This course emphasizes the importance of drivers paying close attention to the road and its conditions, as well as how their behaviors and decisions can factor in a rollover.	0.25	Intermediate
<b>Texas Air Conditioning and Refrigeration Contractors Administrative Rules - Title 16, Chapter 75</b>	This informative interactive online course explores the state's administrative rules for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. As an ACR contractor in Texas, you studied the laws and rules to pass your licensing examination. One aspect of these laws and rules is that you must take a one-hour course each year to stay up to date and maintain your license. ACR Contractors are professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This course satisfies the continuing education requirement of the TDLR for one hour of training on the rules and regulations for contractors as part of the overall continuing education requirement. Contractors should not only include these standards in everyday actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas Air Conditioning and Refrigeration Contractors Occupations Code - Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing the Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Texas Cybersecurity Awareness for Employees Program</b>	In our digital world today, attackers seem to be lurking behind every click of the mouse or tap on the screen. Many people forget that they are the keepers of their own security safety and the security safety of the institutions for which they are employed. This program is intended to familiarize employees with Cybersecurity Awareness. The program addresses how an employee is aware and identify the security risk involved with working with an organization's data. Lessons in this program are listed below. Lesson 1: Cybersecurity Awareness for Employees: Security Awareness Essentials Lesson 2: Cybersecurity Awareness for Employees: Social Engineering Lesson 3: Cybersecurity Awareness for Employees: Classifying and Safeguarding Data for Corporate and Personal Use Lesson 4: Cybersecurity Awareness for Employees: End User Best Practices Cybersecurity Training Requirement House Bill (HB) 3834 of the 86th Texas Legislature requires state and local government employees, state contractors and elected officials who have access to a state or local government computer system or database, to complete annually a 2 hour certified cybersecurity training course. Access is defined as any person who has been given an account to access any state or local information system. Vector Solutions offers 'Texas Cybersecurity Awareness for Employees Program' a 2 hour course that has been certified by the Texas Department Information Resources (TX DIR) to meet the annual requirement.	2	Fundamental
<b>Texas Electrician 4 Hour CE Program #5</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part 2 - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part 3 covers the changes in Articles 242 and 250 of the National Electrical Code®. Notable changes include the creation of Article 242 and deletion of Article 280 and 285, a new section addressing the bonding of equipment on the line side of the service, specific requirements for aluminum conductors, limiting the role of rebar in the grounding electrode system, fixing an error about the sizing of bonding jumpers, reducing the identification requirements for equipment ground conductors, and providing relief for the sizing of equipment grounding conductors in certain applications. Part 4 covers the changes in Articles 300, 310, 311, 312, and 314 of the National Electrical Code®. Notable changes include clarifying which fittings may be concealed, harmonizing building code and electrical code rules for stair enclosures, a complete rewrite of Article 310, a new article 311, specific rules for cable trays and enclosures used together, and major changes for boxes in the ceilings of dwelling units.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #6</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. The third portion of this interactive online course covers the changes in the Chapter 3 wiring method articles of the NEC, namely Articles 320 through 392 (AC cable through cable trays). The fourth portion covers the changes in Articles 404, 406, 408, and 410 of the National Electrical Code®. Notable changes include updating the rules for switches, including listing requirements, new prohibited locations for receptacles, expansion of tamper-resistant receptacle requirements, new marking requirements for panelboards, switchboards, and switchgear, and addressing the unique needs of horticultural lighting.	4	Intermediate
<b>Texas Electrician 4 Hour CE Program #7</b>	This is a four-part interactive course. Part one covers the most recent updates and changes from NFPA 70E® 2018 as well as offer some education on what we need to be doing to stay compliant from an electrical safety perspective as it relates to these new updates Part two - For each renewal, an electrical apprentice, electrical sign apprentice, journeyman electrician, master electrician, journeyman sign electrician, master sign electrician, residential wireman, journeyman lineman or maintenance electrician must complete four hours of continuing education. One of those hours must contain training on state law and rules that regulate the conduct of licensees. This course will fulfill that requirement. Part three covers the changes in Articles 411, 422, 424, 430, 440, 445, 450 and 480 of the National Electrical Code®. Notable changes include expanding the GFCI requirements for specific appliances, addressing new overload protection options for certain motors, new listing requirements for generators, and added disconnecting means requirements for generators and batteries. Part four covers the changes in Articles 700, 702, 706, 725, 770 and Chapter 8 of the National Electrical Code®. Notable changes include clarification of the requirements for transfer equipment, reduced requirements for unit equipment used for emergency lighting, several new requirements for energy storage systems, and the consolidation of several rules in Chapter 8.	4	Intermediate
<b>Texas Land Surveyors: Texas Administrative Code Rules, Title 22, Part 29</b>	Land Surveyors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Land Surveyors, discussing Title 22, Part 29 of the Texas Administrative Code (Act), administered by the Texas Department of Licensing and Regulation. Land Surveyors should not only include these standards in everyday actions, but actively strive to exceed them whenever possible.	4	Intermediate
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: 16 Texas Administrative Code, Chapter 75</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors under Title 16, Administrative Code, Chapter 75, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental
<b>Texas State Laws &amp; Rules for A/C &amp; Refrigeration Contractors: Title 8, Chapter 1302</b>	ACR Contractors are considered to be professionals and should always act in an appropriate and professional manner. Knowledge of the most current laws and rules for this profession will enable contractors to perform their work to the best of their ability. The State of Texas has passed laws that provide the minimum specifications for required actions. This informative interactive online course explores the state's requirements for Air Conditioning and Refrigeration (ACR) Contractors, discussing Title 8, Occupations Code, Chapter 1302, administered by the Texas Department of Licensing and Regulation. Contractors should not only include these standards in every day actions, but actively strive to exceed them whenever possible.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
The Art of Negotiation	From childhood we practice the art of negotiation. Bed time, a treat, a promotion, a raise, an extended deadline. Regardless of the type of work we do, knowing how to negotiate effectively can greatly impact our success and our satisfaction. Strategic application exercises and a rich multimedia process, will teach you basic skills to negotiate effectively to get the results you want.	0.6	Intermediate
The Change Process	In LearnSmart's Change Process video training you will learn about where meaningful organizational change begins, as well as the important role that employees and managerial staff play in the success of the transition process. In this course you'll learn about the various behavioral styles that influence the planning and progression of change: thinking, social, personal and more. You will also learn how to control, manage and integrate healthy change initiatives with minimal conflict through empathy, listening skills and celebrating short-term successes. This course will further provide you with strategies on defining job roles, setting performance standards, gathering feedback and building teamwork. With the information, learning tools and management approaches offered here, you will recognize that change should not be a stumbling block for employee relations, but an invitation to bring out the best in their forward thinking and yours.	2.5	Intermediate
The Hazards of Oxygen and Oxygen Enrichment	This course will introduce and describe the characteristics of oxygen (O2). It will discuss the health hazards of O2 and how to detect oxygen deficient and oxygen enriched atmospheres. You will learn best work practices including handling and storage.	1	Intermediate
The Importance of the International Building Code (IBC) in the Design and Construction of Safe Buildings	This three-hour webcast gives participants an introduction to the International Building Code (IBC), which is a model building code developed by the International Code Council (ICC). The IBC Codes provide minimum safeguards for people with regard to building safety. Focus will be on the importance of the code in regard to fire prevention, ingress/egress, and structural stability. Discussions will also include additional codes (e.g., International Plumbing Code) that when referenced by the IBC are adopted, as well. This webcast distills the IBC down to relevant code sections, chapters, and working examples that illustrate fundamental code concepts.	3	Fundamental
The Petroleum Industry - Crude Oil Classification and Benchmarks	Fluctuations in the price of oil triggered the debate regarding the level of world oil reserves, and the capacity to meet future energy demand has taken on a new impetus. This has led to reinvestigation of the methods of crude oil classification and classification of reserves. For the purpose of the course, we'll define petroleum as a naturally occurring mixture of hydrocarbons, generally in a liquid state (that may also include compounds of sulfur, nitrogen, oxygen, metals, and other elements) which occurs in sedimentary rock deposits throughout the world. However, the definition of petroleum-associated materials has been varied, unsystematic, diverse, and often archaic. It is only recently that some attempt has been made to define these materials in a meaningful manner. Thus, it is not surprising that attempts to classify petroleum have also evolved. In this course we will review these methods and present them to you for further consideration in terms of pricing strategies. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
The Petroleum Industry - Exploration, Recovery, and Transportation	This course will give a non-technical explanation of the technical aspects of oil exploration and recovery; but the information in this course is intended for the technical and non-technical person alike. We'll explore the different operations for exploration and recovery of crude oil and other sources of energy, such as tar sand. We'll also examine the different methods of transportation used to transport varying amounts of oil. This course will also touch upon how the exploration, recovery, and transportation oil affect oil economics, including prices, supply, and demand.	2	Fundamental
The Petroleum Industry - History, Terminology, and Culture	When you think of crude oil, the first thing that probably comes to your mind is the black liquid that is pumped out of a reservoir. Or you might be thinking of the liquid you pump into your car, which you notice is a bit more expensive than it was a decade or even a week ago. The definition of crude oil is confusing and variable and has been made even more confusing by the introduction of other terms that add little, if anything to petroleum definitions and terminology. Actually, until the mid-1800s, this vast untapped wealth lay mostly hidden below the surface of the earth. Some oil naturally seeped to the earth's surface and formed shallow pools that were used as a source of medicinal liquids, illuminating oil, and, after evaporation of the volatile components, as a caulking for boats and a building mastic. For centuries, demand was limited but better refining techniques and surging demand for kerosene and lubricants in the late 19th century changed this. Today, crude oil is the major source of fuel used by people today. In this course, we will go back to petroleum's verbal roots, through its initial uses to its role in society today and the major oil companies that distribute it.	2	Fundamental
The Petroleum Industry - Oil Supply	In this course we will cover conventional and non-conventional oil sources, especially the impact of heavy oil and tar sand bitumen. We will also cover past and present technological, economic, and geopolitical factors of oil. These will be viewed in light of the expectation of peak oil, which is the peaking and subsequent decline of the production rate of oil, and the knowledge that oil is a limited resource.	1	Fundamental
The Petroleum Industry - Origins and Occurrence of Oil	In this course we will discuss the formation of oil and review the theories of its origin. You will get comprehensive information about oil reservoirs including their structure, oil accumulation, as well as distribution, migration and transformation of reservoir fluids. We will cover classification and evaluation of reservoirs and estimation of fuel reserves. We will also review fuel reserves focusing on quality, quantity, patterns, and benefits. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2011. All rights reserved.	1	Fundamental
The Petroleum Industry - The Crude Oil Market	Petroleum economics is the field that studies human utilization of petroleum resources and the consequences of that utilization. In the simplest scientific terminology, petroleum use allows the production of energy. In this course we will discuss the factors and pricing strategies that determine oil prices, the transportation of oil from the producer to the consumer, and the structure of the crude oil market and global consumption of oil.	2	Fundamental
The Petroleum Industry - The Future	Crude oil is the major source of fuel used in the modern world, and the crude oil sector is the largest and most dominant economic sector of business in the United States. The United States has come not only to rely on crude oil but the nation is also addicted to crude oil. Cures for this addiction are possible, such as a reduction in the amount of oil required for daily life, but will take time and are unlikely to succeed in the near term. This course discusses the future of the petroleum industry and illustrates how the increasing demand for energy affects both crude oil resources and production of alternative fuels.	1	Fundamental
The Power of One-Taking Accountability to Get Results	Have you ever said that something is not your responsibility? Maybe it is! Learn how taking accountability can change the results you are getting at work and in your life. This course uses application exercises and a rich multimedia process to give you the insight and skills to change your results through taking accountability.	0.5	Intermediate

# AEC Complete

Title	Description	Hours	Level
<b>The Power of Vision</b>	Do you know where you're going professionally? Do you know what you want out of the next 3 weeks? How about the next 3 years? This course will help you create a powerful vision of where you want to go and what you want to achieve. You'll also learn how to get others on board with your vision. You will learn from real-world examples of different individuals and how they took their vision of what they wanted and made it a reality. Whether you are trying to get somewhere personally, or you want to create a clear and compelling vision of where you want your team to be, this course can give you the foundation you need to get pointed down the right path.	0.5	Intermediate
<b>The Principles and Implications of the International Energy Conservation Code (IECC) v2012</b>	Green building and sustainable design are hot topics in the building design and construction industry. Beyond the hype, though there is a real advantage to employing many of the tactics espoused by these strategies, chief among these advantages is the ability to save money while saving the environment. Many standards have been written in an attempt to codify these green approaches. ASHRAE has put out their 189.1 standard, and industry personnel are very familiar with LEED. Another entity that is pushing the boundaries of green and sustainable design is the IECC - International Energy Conservation Code. In this course we will explore the tenets and nuances of that standard.	2	Fundamental
<b>The Risk of Misclassification of Employees &amp; Essentials of I-9 Compliance (RV-PGM144)</b>	In the first module of this interactive, online program, we will define the term independent contractor. We will describe tests used to classify workers as independent contractors, such as behavior controls, financial controls, and the actual working relationship, and we will discuss examples of independent contractors. The second module of this program will discuss valuable information on how to complete Form I-9, an important document used for employment eligibility verification. The Form I-9 is a valuable and easy-to-use tool. The use of Form I-9 helps protect jobs for authorized workers, and ensure a legal workforce.	1	Fundamental
<b>The Safe Lab Environment</b>	This course provides participants with an overview of safety considerations for nearly every aspect of laboratory operation. Safety issues regarding lab design and how design features protect lab workers are discussed. The importance of ventilation and the operation of ventilating equipment (such as chemical hoods and biological safety cabinets) are also emphasized. Also detailed are safe practices and precautions associated with the handling and storage of chemicals. The course also describes various methods for cleaning up chemical spills and the procedures and regulatory concerns for disposing of chemical waste. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>The Safe Operation of Utility Carts</b>	Utility Carts are used in many types of facilities from warehouses to apartment complexes. This video addresses the many hazardous and potentially dangerous situations often overlooked by Utility Cart operators. It stresses the importance of following safety guidelines, and the problems caused by complacency in the operation and basic maintenance of these utility vehicles. Topics covered also include: Daily Inspections (tires, fluids, steering, obstacles) Load limits Occupant & Pedestrian safety Speeding, skidding & slick surfaces Turns, center of gravity & blind spots Backing up, ramps and parking Rules for riders	0.15	Fundamental
<b>The Science of Mold</b>	Mold is found throughout nature and is critical to the success of the food chain in forests and low land areas. Yet, if mold shows up in your home interior, it is usually a sign that something is wrong. If not dealt with correctly, mold will become a problem for the human inhabitants. This course will introduce you to the fundamentals of what good and bad mold is, and why it should be respected but not feared. It will also provide the building blocks for a more complete understanding of what it takes for fungal growth and some simple steps toward safely remediating it from the indoor environment.	1	Fundamental
<b>The Science of Personal Productivity</b>	Exploring the power of the mind to get more done. Do you start your day by checking your email and then get stuck? Do you let one big task loom over your head and get in the way of your productivity? Do you find yourself saying Yes to too many tasks and then not having enough time to do anything well? If any of these sound like you, this course from Dr. Rebecca Heiss will help you understand more about why we find ourselves in these situations, and teach you practical, science-based ways to be more productive at work or home.	0.75	Fundamental
<b>The Sustainable Site Design Process</b>	Sustainable site design is a creative and analytical process of information gathering, investigation, and composition that utilizes art and science to connect natural and built systems in a mutually beneficial way. Design outcomes are not inherently sustainable and should not be assumed just because a site is made up of vegetation, soil, and other natural components. Like all successful aspects of a project, sustainability must be intentional and nurtured. By infusing sustainability into all aspects of the design, it becomes an interwoven and inseparable component that is vital to the project's overall success. Traditional design processes and team interactions do not always support sustainable outcomes. To help overcome this issue, this course will cover an integrated design process designers can use which encourages the collaborative efforts of a project team and the utilization of the technical expertise of other professions to broaden the team's awareness of the range of possible design solutions. Posted by arrangement with John Wiley & Sons, Inc. Copyright © 2012. All rights reserved.	1	Fundamental
<b>The Top 5 Marketing Mistakes</b>	What Is The Difference Between A Marketing Campaign That Delivers Average Results, And One That Boosts Profits And Changes Your Bottom Line? (Hint: The keys to effective marketing are in this course). In this course, Rich Harshaw explains why his famous statement, Everything You Know About Marketing Is Wrong is so universally true, and what businesses can do to revamp their marketing strategies to achieve superior results.	3	Fundamental
<b>The Ultimate Project Manager, Chapter 01: Today's Project Manager</b>	Project management in the design industry is changing at a furious pace. Projects are increasing in complexity, and project managers in design firms are confronting an overwhelming volume of project information. Project teams are expanding and becoming more integrated as the walls between design and construction disintegrate. New communication and technology tools are allowing project teams to become more mobile and more global. New software solutions and project delivery methods are transforming the ways that projects are managed, designed, and built. On top of it all, clients are demanding even faster timelines and stricter adherence to budgets. With design firms and project managers operating on an entirely new playing field from just a few years ago, PSMJ has revised The Ultimate Project Management course series to guide you through the A/E industry's new project management landscape. In the first course of this series, we will take an in-depth look at what it means to be a project manager in today's high-stress, fast paced business climate. We will examine the duties and responsibilities of a typical project manager and review the traits that make them successful. We will explore the resources and elements that should be included in a project management training program.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
The Ultimate Project Manager, Chapter 02: Marketing And Proposals	Project managers are also proposal managers. In this course you will learn to treat the proposal process as a project. We will cover selecting quality clients using a client pre-proposal evaluation form. You'll get instruction in making the go/no go decision reasons to turn down a project. We'll show you how to manage the proposal just like a project through use of proposal manager's checklists. You'll learn how to prepare for the first proposal meeting, choose support staff, meet with clients during the proposal phase, and define scope of services. We'll pull together the entire proposal and identify the difference between good and bad proposals, and how to avoid proposal pitfalls. You'll also learn how to improve your presentations and complete a post-award analysis.	1	Intermediate
The Ultimate Project Manager, Chapter 03: The Contract Agreement	This third course in the The Ultimate Project Management series discusses important information regarding contract agreements, and illustrates what project managers need to know to successfully negotiate contracts. We will examine contract basics, including contract sections and appropriate terms, in addition to negotiating rules and ways to manage risk. The purpose of this course is to provide project managers with a solid understanding of contract agreements and tools necessary to negotiate profitable projects.	2	Intermediate
The Ultimate Project Manager, Chapter 04: The Project Management Plan	The purpose of this course is to provide you will the skills required to develop and administer an efficient project management plan. You will learn the major elements and concepts of a project management plan, and how to use those to effectively develop and administer a project management plan that meets your client's needs. Above all, you will understand how effective project management planning can not only help your project succeed, but your business too.	1	Intermediate
The Ultimate Project Manager, Chapter 05: The Project Schedule	Successful projects are achieved for a variety of reasons, but an essential component is the project schedule. The purpose of this course is to not to demonstrate the importance of project schedule, but of an effective project schedule. We'll cover the different purposes for using a project schedule and the different techniques that can be used to build a project schedule. Throughout the course, remember that producing project schedules is not a project itself; instead they are tools to help you successfully achieve your project goals.	1	Intermediate
The Ultimate Project Manager, Chapter 06: The Project Budget	Price, cost, budgets, estimates, fees, revenues, etc.—there always seems to be confusion about these terms. Are they the same thing or different? If they are different, what is the difference? These are some of the questions that we will answer in this course. This course will not attempt to make the project manager into an accountant; however, a basic understanding of these terms is vital to establishing the project budget. Assuming that the PM has completed the planning and scheduling phase, it is now time to align the project budget to the tasks in the project management plan.	1	Intermediate
The Ultimate Project Manager, Chapter 07: Leading The Project Team	The project team is made up of experienced individuals who need to work together toward successful completion of a project. This course gives you, the project manager, the processes, methods, and tools to build and lead your project team. You will get instruction in: Selecting the team Ensuring maximum productivity Maintaining project records Managing design consultants Delegating to and motivating your team	1	Intermediate
The Ultimate Project Manager, Chapter 08: Managing Client Relationships	In the design industry, business is built around good service...and good service depends on good relationships. This eighth course in The Ultimate Project Manager series discusses the importance of establishing and maintaining good client relationships. Keys to a successful client relationship will be discussed, in addition to ways to create a positive impression and provide a great client experience.	2	Intermediate
The Ultimate Project Manager, Chapter 09: Developing Effective Communications	Effective communication goes a long way in building rapport with your co-workers and clients and informing all project stakeholders involved of a project's direction and progress. The purpose of this course is to teach you about the various communication methods that can be used in your work place. In this course you will learn about the three most common types of communication (i.e., verbal, written, and body language) and how to use communication to send messages, conduct meetings, and monitor a project's progress.	1	Intermediate
The Ultimate Project Manager, Chapter 10: The Project Startup	A successful project is the result of many factors, but a well-organized project manager is one of them. The purpose of this course is to teach you the project management skills that are essential to starting a project off on a positive note. In this course you will learn how to start project meetings with your co-workers and the client and how to record and manage documents and files for others to use in your project manager's notebook.	1	Intermediate
The Ultimate Project Manager, Chapter 11: Managing Your Time	Your time is your most valuable personal asset. It's one of the few things that can't be purchased. By definition there is also a limited amount—no matter who you are, there are only 24 hours in a day. Therefore, how you allocate this limited personal resource will determine your success in both your personal and professional life. In this course, we will take a look at some of the ways that you can better manage your time by examining effective ways to handle meetings, interruptions, and your own schedule.	1	Intermediate
The Ultimate Project Manager, Chapter 12: Managing Project Studies And Reports	Because many design firms are consulting with clients using studies and reports, rather than designing; you, as a project manager, may find yourself managing project studies and reports. In this course you will get guidance in comparing design and study projects. We'll give you specialized instruction in planning and managing the study project as well as focused direction in the report preparation process. We'll also cover engineering calculations, technical or peer reviews, and final activities including oral presentations.	1	Intermediate
The Ultimate Project Manager, Chapter 13: Managing Design And Construction Phases	Typically, design projects are divided into three phases: preliminary design, production design and bidding, and construction. Each phase requires project planning to maintain control and ensure the project is completed on time and on budget. The purpose of this thirteenth course in The Ultimate Project Manager series is to provide a practical guideline for each phase of production. Design development and required documentation is covered, in addition to the production design process and the project construction phase.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>The Ultimate Project Manager, Chapter 14: Managing Project Quality</b>	Have you produced projects that did not meet you or your client's expectations, despite having a skilled team and rigid project management plan? This could have been because quality was not accounted for early on in the project. The purpose of this course is to show you methods and tools you can use to implement and improve the quality of your projects. You will learn: How to build quality into your project How to estimate the annual costs of a standard project to determine the how much you should spend on meeting quality expectations How to work within quality assurance programs and manage the quality control process How to review the quality of your project, allowing you to improve the quality of your project And How to prepare for design changes that can unexpectedly show up	1	Intermediate
<b>The Ultimate Project Manager, Chapter 15: Managing Project Risks</b>	The process of identifying and managing the various types of project risks has become especially important in today's business environment, where all parties jump to legal action as the first step in resolving any dispute. Unfortunately, the design firm, your organization, is in the center of almost every dispute. The purpose of this course is to provide you with the methods and tools you will need to identify, manage, and mitigate risks in your projects. In this course you will learn about three fundamental elements that limit a firm's liability for project risks: Identifying all potential types of risk that could impact the project Assigning the management of each type of risk to the party who is best suited to manage/control the risk Implementing a risk management plan to manage and/or mitigate the risk elements of each risk assigned to the design firm	1	Intermediate
<b>The Ultimate Project Manager, Chapter 16: Project Financial Management</b>	Every design firm is in the business of providing professional consulting services to its clients. To be successful and remain in this business, however, its projects must be profitable (i.e., the revenue must exceed all costs including overhead and profit expectations). In addition, clients must receive invoices in a timely manner, and your firm must receive payment for the completed work within the time specified in the contract. A PM is assigned to each project, not only to manage the project team and to ensure that the project budget is met, but also to ensure: The client receives invoices for the scope of services Payments are received from the client within the contract payment period The project achieves its as-sold financial results with no write-offs. In a nutshell, the PM is responsible for the project's financial management in two primary areas: cash flow and profitability. This means the PM must be familiar with the monthly financial reporting cycles and have the ability to plan, track, and evaluate the fiscal performance of a project. He or she must understand how the project's total gross revenue relates to the project direct labor and project expenses, including consultants. Plus, the PM must also understand how the planned and actual project performance contributes to the overall profitability of the firm. In this course we will look at all these responsibilities and concepts in detail.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 17: Project Management And Design Technology</b>	Technology can be the project manager's best friend. In this course we will review some basic concepts of technology systems with extra emphasis on Building Information Modeling (BIM). You'll get instruction in selecting and testing software and using templates and standard forms. We'll examine the latest communications tools and the use of project websites. You'll also receive encouragement in backing up data and creating archives. We'll also touch on making sales presentations using your computer as well as training the design staff in computer technology.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 18: Monitoring And Controlling The Project</b>	The control of the project team and the project are the main responsibilities of a project manager. Because so much of the project accountability is in the hands of the project manager, it is essential that these professionals have the required skills to ensure each project is completed successfully. The purpose of this eighteenth course in The Ultimate Project Manager series is to provide detailed project management duties and responsibilities, including monitoring the progress of the project, tracking and analyzing schedules and budgets, and anticipating problems so they can be avoided.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 19: Project Closeout</b>	Closing out a project can be as difficult, if not more so, than starting a new project. Just like a project which must be carefully and thoroughly planned out, so must the project closeout. The purpose of this course is to guide you through the processes and all considerations that should be accomplished in that should be considered during project closeout. You will learn: The importance of having a plan for wrapping up a project The different types of analyses and closeouts that need to be completed How to acquire and preserve a knowledge management program And How to converse with project stakeholders involved in the project closeout.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 20: Alternative Project Delivery Methods</b>	Design-bid-build may still be the dominant method of project delivery in the AEC industry, but its popularity is in decline. Change is taking place in the AEC industry as alternative project delivery methods become a more popular choice, and project managers need to adapt to the changing marketplace. In the twentieth course of this series, we will take a look at the changes and discuss the advantages and risks involved in the selection of alternative project delivery methods.	1	Intermediate
<b>The Ultimate Project Manager, Chapter 21: A/E Project Management Benchmark Data</b>	As a project manager, you will want to keep up with the constantly changing industry practices and compensation. In this course we will give you the results of surveys so that you will know what's happening in the industry and how your firm compares to your competition. You'll get project manager staffing levels, net revenues per project manager ratio, and direct labor hours per project manager ratio. We'll cover senior project manager and junior project manager compensation. You'll also get project manager time charges, design firm billing rates, contract forms and terms, design fees as a percentage of construction costs, direct project expense, and a section on electronic data processing.	1	Intermediate
<b>The Ultimate Project Manager, Series Summary: The Short and Sweet Version</b>	The accomplished PM is responsible for leading, staffing, and managing all aspects of the project. This includes the work of the entire project team and the work performed by all administrative, engineering, and construction disciplines even if the PM isn't specifically trained in the technical aspects of the other disciplines. It also includes the extremely important aspects of client relations. It is the project manager who is charged with the responsibility to deliver the service to the client. In this course we will touch upon the different phases leading to the foundation of the project and project features the project manager must control for in order to see the project come to a successful close.	1	Intermediate
<b>The Value of Concentrating Solar Power and Thermal Energy Storage</b>	This course examines the value of concentrating solar power (CSP) and thermal energy storage (TES) in four regions in the southwestern United States. The analysis shows that TES can increase the value of CSP by allowing more thermal energy from a CSP plant's solar field to be used, by allowing a CSP plant to accommodate a larger solar field, and by allowing CSP generation to be shifted to hours with higher energy prices. We will look at the sensitivity of CSP value to a number of factors, including the optimization period, price and solar forecasting, ancillary service sales, capacity value and dry cooling of the CSP plant. We will also discuss the value of CSP plants and TES net of capital costs.	1	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>The WELL Building Standard</b>	How well does your building fit your tenants? Do your employees need a place to walk or work out? This interactive online course introduces the WELL Building Standard and discusses unique features (known as credits in LEED) to certify projects and gain the credential. We will discuss the application of the WELL standard to a hypothetical case study, conducting a feature-by-feature analysis and comparing the building before and after the standard is applied.	3	Fundamental
<b>Three-Phase AC Induction Motor Maintenance</b>	This course covers three-phase alternating current (AC) induction motors, which use magnetic induction to convert three-phase AC power into mechanical energy. They are used throughout industry to drive equipment such as conveyor belts, pumps, air compressors, and generators. Three-phase AC induction motors are economical, efficient, and reliable. But, although they are reliable, they may still break down. Electrical maintenance personnel are responsible for maintaining the three-phase induction motors in their plant and for fixing any AC motors that have broken down.	1	Intermediate
<b>Time Management Basics</b>	You can improve the way you use time. You can avoid patterns and habits that make it difficult for you to get things done. Benjamin Franklin said, Dost thou love life? Then do not squander time, for that's the stuff life is made of.	1.5	Fundamental
<b>Tips for Managing Older Team Members</b>	Being in a leadership position early on in your career is exciting. But on the flip side, you can face hurdles, including learning how to manage employees who may be years older than you. Older employees are a talent pool that shouldn't be underutilized despite the age gap. This video will provide some tips of what to do, and what not to do, when managing older team members.	0.2	Intermediate
<b>Torts and the Surveyor</b>	A tort is defined as a civil wrong, not simply negligence. Surveyors guilty of a tort may be sued for something as simple as cutting a tree limb or as complex as a re-establishment of a 150-year-old boundary. Surveyors, like all professionals, have liability for their errors. Most surveyors who are sued encounter a lawsuit in the form of a tort action resulting from a claim of negligence. This interactive online course reviews the specific elements considered to comprise a tort, and recommends strategies to reduce professional liability. It also compares the differences between negligence and tort, and underlines that a tort is a more serious charge. Learn about the standard four elements of any tort - duty, breach, cause and damage - and how to reduce your professional liability.	1	Fundamental
<b>Traffic Control Measures</b>	Traffic control uses design and operational strategies to influence the movement, flow, and speed of traffic. You can apply the information and methods you learn in this interactive course to develop new and modify existing transportation infrastructure. The expertise you acquire can add benefit and reduce potential danger in all your projects.	2	Fundamental
<b>Transformer Maintenance</b>	This course is intended to provide participants with a basic background in transformer theory and connection schemes as well as an overview of the most common transformer types and the typical maintenance and testing procedures that apply to them.	1	Intermediate
<b>Transformers</b>	Substations and switchyards contain various types of transformers. Among them are power transformers, current transformers, and potential transformers. Each of these types of transformers has unique features that distinguish it from the other types of transformers and from other substation and switchyard equipment. In this course, you will learn about these transformers as well as their connections and basic principles.	1	Intermediate
<b>Transformers I - Electrical Characteristics</b>	This 1-hour interactive online course is the first part of a series of courses on electric distribution transformers. In this part we will look at the basic electrical characteristics of transformers including how magnetism is used to create a voltage within the transformer. Characteristics such as how a transformer works, how the primary and secondary voltages and currents are related, how to calculate the transformer's regulation and efficiency, as well as the factors contributing to losses within the transformer are reviewed. Diagrams are presented that show the basic construction of a distribution transformer and the course includes a description of the common designs in use today such as shell-form designs, core-form designs, and the various three-phase designs. The course includes a multiple-choice test at the end.	1	Advanced
<b>Transformers II - Standards</b>	This 2-hour interactive online course is the second in a series of courses on electric distribution transformers. In this course we will review the various methods to classify transformers including cooling methods, protection schemes, and installation types. This course discusses transformer types, including oil filled and dry types, as well as the different types of transformer oils that are used. Both conventional and CSP transformers are reviewed. Standards, such as the insulation standard, short-circuit withstand, voltage rating identification, and terminal markings, are reviewed. Finally, transformer loading issues and methods to evaluate the cost of operating distribution transformers are discussed. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transformers III - Connections</b>	This 2-hour interactive online course is the third in a series of courses on electric distribution transformers. In this course, we review the application of single-phase transformers in both single-phase installations and three-phase installations. Other factors such as the available fault current at the secondary of a transformer are reviewed as well as how ferroresonance impacts the operation of distribution transformers. The course includes a multiple-choice test at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Transformers, Breakers, and Switches</b>	This course is designed to familiarize participants with basic concepts associated with the operation of transformers, circuit breakers, and various types of switches. After completing this course, participants should be able to explain the basic principles of transformer operation, identify some of the basic components of a transformer, and describe checks that are generally made during a transformer inspection. They should also be able to describe the general operation of a circuit breaker, explain how to reset a tripped circuit breaker and how to rack out a circuit breaker, and describe the basic operation of pushbutton switches and rotary switches.	1	Intermediate
<b>Transition to Leadership</b>	New to a leadership role? You're in the right place! As leadership, you have a different focus, new responsibilities, and different challenges than you did as an individual contributor. This course covers the ins and outs of the sometimes difficult transition experience from an individual contributor into leadership. Regardless of your title or the type of leadership role you now fill, through interactive assignments and a rich multimedia process, this course will smooth your transition and put you in position to excel in your new role.	0.6	Intermediate
<b>Transit-Oriented Development</b>	This webcast introduces the concept of Transit Oriented Development (TOD), which is a walkable, high-density, compact, mixed-use form of development typically focused within close proximity of a transit station. The course focuses on TOD social, economic, and environmental implications in terms of transit ridership, property values, congestion relief, pollution reduction, community place making, and other aspects of transportation and urban policy. This course also addresses potential negative consequences of TOD including trampling neighborhood character, gentrification, and increasing urban sprawl and concludes with snapshots of successful TOD case studies.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Transmission and Distribution: Distribution Line Installation and Removal</b>	Sometimes changes are made in the area around a distribution line that make it necessary to relocate or replace a portion of that line. This interactive online course will familiarize you with the general procedures involved in completing a typical distribution line installation and removal. You will learn how to plane an installation and removal job and how to perform the major steps involved in doing the job. You will also learn how to pull and sag lines, parallel a new line with an existing line, remove conductors, and remove equipment.	1	Intermediate
<b>Transmission and Distribution: Distribution Line Replacement</b>	The purpose of this course is to teach how to replace conductors in an existing line with new conductors. The situation described is one that often occurs when it is necessary to increase the size of the conductors in a line. This interactive online course demonstrates how to install the new conductors, parallel them with the existing conductors, and remove the old conductors. The importance of maintaining the proper clearances and the importance of maintaining the integrity of the existing line are explained. Safety is emphasized throughout the course. At the conclusion of this course, participants should be able to plan a replacement job and demonstrate how to perform the major steps involved in doing the job. They should be able to install temporary crossarms, transfer lines, pull and sag new lines, parallel a new line with an existing line, and remove old conductors.	1	Intermediate
<b>Transmission and Distribution: Focus on Distribution</b>	The transmission part of a transmission and distribution system supplies electricity to substations and individual service areas. While the job of the distribution part of a T&D system is to take this electricity and supply it to individual consumers at a voltage they can use; doing this job properly requires the use of a variety of electrical devices and an intricate system of distribution lines. This interactive online course will teach you about the components that make up a typical distribution system. You will learn how to recognize individual components and gain a basic understanding of the jobs they perform.	1	Intermediate
<b>Transmission and Distribution: Framing Specifications and Basic Construction Diagrams</b>	The purpose of this course is to teach participants the kinds of information that can be obtained by reading electrical system diagrams and to illustrate how this information can be used to assist lineworkers who work on electrical systems. Practical examples of how to get information are given throughout the course. At the conclusion of this course, participants should know what kind of information is typically found on construction diagrams, on schematic diagrams, and in specification manuals. They should know how to use all of these references to determine the information necessary to do a job.	1	Intermediate
<b>Transmission and Distribution: Introduction to Transmission and Distribution Systems</b>	The purpose of this interactive online course is to teach participants how transmission and distribution (T&D) systems generally deliver to customers the power produced by power plants. The course describes how the major components of a T&D system function and how electricity flows through these components on its journey from the power plant to customers. At the conclusion of this course, participants should have a basic understanding of how transmission and distribution systems operate. They should be able to identify the basic components of a transmission and distribution system and explain their functions. They should also be able to describe the flow path from a power plant, through a typical T&D system, to the customer.	1	Intermediate
<b>Transmission and Distribution: Overhead Distribution Systems</b>	The purpose of this interactive online course is to teach the basic layout of overhead distribution systems, to explain how to identify circuits and equipment in the field, and to introduce delta- and wye-connected distribution systems. The basic theory underlying the operation of delta and wye systems is presented, and the differences between them are discussed. At the conclusion of this course, participants should be able to describe the basic layout of an overhead distribution system and identify circuits and equipment in the field. They should understand the basic characteristics of delta and wye systems and should be able to identify delta and wye circuits in the field. They should also understand the importance of identifying whether a system is connected delta or wye before any work is performed.	1	Intermediate
<b>Transmission and Distribution: Pad-Mounted Transformers and Switchgear</b>	The purpose of this interactive online course is to teach the basic principles of operation of pad-mounted transformers and switchgear, the types of equipment that are in common use, and how they are connected. The course also presents the basic principles of pad-mounted transformer and switchgear inspection and troubleshooting and shows an example of how to detect a problem with one leg of a three-phase transformer. At the conclusion of this course, participants should be able to state how pad-mounted transformers and switchgear are used and to describe how they are connected. They should be able to recognize and identify commonly used types of pad-mounted transformers and switchgear. They should also be able to inspect pad-mounted transformers and switchgear, and they should be able to detect a problem with one leg of a three-phase transformer.	1	Intermediate
<b>Transmission and Distribution: Power Quality</b>	This interactive online course is designed to familiarize participants with the issues and problems associated with maintaining power quality. To obtain maximum benefit from this course, participants should have a general understanding of the basic concepts of electric power generation, transmission, and distribution. At the conclusion of this course, participants should be able to explain the basic concepts of power quality, identify sources and causes of power quality problems, and describe the effects of power quality problems on residential and commercial customers. They should also be able to identify equipment and methods for preventing and monitoring power quality problems.	0.75	Intermediate
<b>Transmission and Distribution: Service Installation</b>	Each service installation job you do will be different because of different site conditions, but the basic installation skills and practices you will learn in this course can be applied no matter what type of service installation job you're doing. This interactive online course will teach you how to install and connect services. You will learn about the different types of connectors available and how service conductors are joined together using some of those connectors. You will also learn how to install single phase, overhead, and underground residential service. Additionally, you will learn how to install three-phase service, and how to replace an existing three-phase service without affecting the customer.	1	Intermediate
<b>Transmission and Distribution: Substations and Switchyards</b>	Electricity affects almost everything we do. Sometimes its impact is so subtle, we don't even realize it's there. Just about everybody depends on it and expects it to be available when it's needed. From the businesses that use electricity to process information to suburban homeowners who rely on electricity for the basic conveniences we've grown accustomed to, to the rural dairy farmer who relies on electricity to operate much of his machinery, our entire country is interlaced with transmission and distribution systems that get electricity to where it's needed when it's needed. The purpose of this interactive online course is to teach the basic safety principles and practices applicable to substation and switchyard maintenance work. The course describes electrical, chemical, and personal hazards that may be encountered in substations and switchyards. A general procedure for responding to imminent dangers and accidents is also presented. At the conclusion of this course, participants should be able to identify hazards in substations and switchyards and explain why safety practices are important. They should be able to recognize hazards and unsafe practices on the job, and they should have a general understanding of how to respond to imminent dangers and accidents.	1	Intermediate



## AEC Complete

Title	Description	Hours	Level
<b>Transmission and Distribution: Transmission Line Installation</b>	The purpose of this interactive online course is to describe and demonstrate an approach to installing a transmission line. This work is not a routine part of a lineworker's job in many locations, but an understanding of the basic approach is useful to individuals who are responsible for maintaining lines. At the conclusion of this course, participants should understand how to plan and set up an installation job, the purpose of guard structures, and how to set them up. They should also know how to pull conductors into place to properly sag and how to clip them permanently to the insulators.	1	Intermediate
<b>Transmission and Distribution: Transmission Line Safety</b>	This course is designed to cover three major areas relating to safety in transmission line work: personal safety, electrical safety, and work site safety. Specific attention is directed to proper clothing and protective equipment; hazards associated with slipping, tripping and falling, and lifting and moving loads; electrical hazards and steps that can be taken to safeguard against them; and how personnel can work safely at the job site, both on the ground and while climbing transmission structures. This interactive online course assumed a familiarity with basic electrical theory and transmission and distribution systems. Participants without this prior training may require additional explanation or instruction.	1	Intermediate
<b>Transmission and Distribution: Underground Residential Distribution Systems</b>	Recent developments in technology, such as the development of cable and equipment that can be directly buried in the ground have made underground installation of electrical service to residential areas easier than ever. Today, many residential subdivisions have all their utilities installed underground, giving a cleaner, more picturesque look to the neighborhood. This interactive online course is about underground residential distribution systems, also known as URD systems. URD systems are local distribution systems designed primarily to be buried in the ground and serve residential customers. The purpose of this course is to give you a basic understanding of the common types of URD systems, as well as some of the various components that may be used in a URD system. We'll also be looking at some of the ways a URD system can be inspected. Finally, we'll see a demonstration of how a URD system has been set up to allow work to be done on it safely and efficiently.	1	Intermediate
<b>Transmission and Distribution: Using Line Test Equipment</b>	The purpose of this course is to introduce types of line test equipment used in the field to detect voltage, amperage, and resistance; to show how this equipment is used; and to show the kinds of readings that can be expected from this equipment. After completing this course, participants should be able to identify types of line test equipment used in the field. They should have a basic understanding of the use of this equipment; they should know how to determine which instrument to use; and they should be able to demonstrate the use of each meter to take a reading.	1	Intermediate
<b>Transmission and Distribution: Using Various Types of Electrical Diagrams and Geospatial Information Systems</b>	Did you know different types of electrical system diagrams are used to show large portions of an electrical system down to a single structure or even a portion of a structure? The purpose of this course is to teach the basic kinds of information that can be obtained from various types of electrical system diagrams: one-line diagrams, plan-profile diagrams, framing diagrams, and GIS technology. The course shows how these diagrams are read and interpreted and how information can be used to complete an assignment. This interactive online course will show participants what information is typically found on one-line, plan profile, framing diagrams, and GIS applications. They should also be able to interpret diagrams to determine the location of a job site and then plan the best route to the site. In addition, participants should be able to use a framing diagram to determine what materials should be present at a work site and in what quantities.	1	Intermediate
<b>Transmission and Distribution: Working on Distribution Poles</b>	The purpose of this course is to teach the basic principles involved in working safely on distribution. To illustrate these principles, you will be shown some resources available for planning distribution work. This interactive online course will teach you general considerations associated with planning a distribution job. You will also learn how a variety of tools and equipment can be used, including an auxiliary arm. Additionally, you will learn how to replace secondary conductors, move energized conductors, and how to install floating dead-ends.	1	Intermediate
<b>Transportation Engineering: Highway Capacity</b>	Highway accidents result in thousands of deaths a year. Knowing how highway capacity analysis is used in the design of safe and efficient roadway facilities is essential to the health safety and welfare of the general population. This interactive online course will teach you about the fundamental concepts of highway capacity analysis. You will learn about transportation system elements, types of roadway facilities, design vehicles, the concept of level-of-service, traffic volume parameters, and speed parameters and how they are relevant in analyzing the capacity of roadway facilities.	2	Fundamental
<b>Transportation Engineering: Introduction to Transportation, Planning, and Funding</b>	In the United States, transportation accounts for approximately 17 percent of the gross national product (GNP), and approximately 15 percent of household income is spent on transportation needs; therefore, transportation, which can be defined as the movement of people and goods, is vital to business and life in the U.S. This interactive online course will discuss the structure, administration, planning, and funding of United States highway system. Topics that will be covered include an overview of the structure of the US highway system, the role of State Departments of Transportation, transportation at the local government level, the functional classification of highways, and the funding mechanisms currently in place for transportation at the federal, state, and local government levels. While this is not a Florida-specific course, please be advised that the presenter will be utilizing examples from his experience as a licensed engineer in the state of Florida.	2	Fundamental
<b>Transportation Engineering: Mass Transportation</b>	Mass transportation (or public transportation) is any form or shared-passenger transportation service available for use by the general public. The types (or modes) of mass transportation include airline service, bus (commonly referred to as transit or transit service in the United States), paratransit (van service), light rail (also known as tram), commuter rail, heavy rail, ferries, as well as other modes such as motorized tricycles (often referred to as auto rickshaws) that are common and widely used in mostly developing and emerging economies. New and innovative modes of mass transportation include Maglev trains. The focus of this interactive online course will be on modes of mass transportation and mass transportation systems common within the United States, in particular transit, paratransit, light rail, commuter rail, and heavy rail.	2	Intermediate
<b>Transportation Engineering: Traffic Flow Theory</b>	This interactive online course presents the fundamentals of traffic flow and queueing theory which form the basis of all traffic analysis. This course presents the relationships among traffic flow, traffic density, and speed which are the primary elements of a traffic stream. These relationships guide engineers in planning, designing, and assessing traffic engineering improvements on highway systems and transportation networks. This course presents analytical methods that are applied in the design of new facilities, and also in evaluating impacts of modifications to existing transportation networks. Specific applications of the fundamental principles presented in this course include analyzing turn lane lengths, evaluating freeway ramp operations, estimating traffic flows at intersections, determining traffic flows at toll booths, and assessing the impacts of bottlenecks and traffic incidents on highway performance. This course presents statistical methods and how they are applied to analyze and manipulate traffic flow data, as well as how they are used to identify deficiencies in transportation systems as well as how they are used to assess traffic operations.	2	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Transporting Hazardous Materials</b>	Every day, hazardous materials are shipped in this country—materials that could threaten the safety of individuals, property, and the environment. These materials are transported by truck, by train, by air, and by water. Because of the risks posed by transporting hazardous materials, you need to know about the potential dangers and steps you must take to help protect yourself and others against them. In this interactive, online course, we'll cover some general requirements associated with transporting hazardous materials. We'll look at what's meant by the term hazardous materials, and we'll see how these materials are classified. We'll also look at documentation and packaging that must be used when hazardous materials are shipped, and we'll look at labels and placards used to identify hazardous materials.	0.5	Intermediate
<b>Tree Trimming Safety</b>	Tree trimming is a job that requires a professional attitude and a high level of training in order to work safely and productively. The very nature of tree trimming lends itself to many hazards. Of course, we all are aware of the potential of a serious fall, but there are also risks of coming in contact with energized utilities, falling trees and limbs, contact with poison ivy, oak, or even snakes. A good tree trimming program must be designed to provide safe working conditions, the training needed to do the job safely and efficiently, selection of qualified personnel, and providing well-maintained tools to do the job. Topics covered also include: Saws, axes, and pruning tools Chainsaw use Personal protective equipment Safety belts, climbing spikes, and harnesses Working from ladders, boom trucks or aerial baskets Planning and other considerations that need	0.25	Fundamental
<b>Tree Trimming, Part 1</b>	Tree Trimming, Part 1 is designed to familiarize participants with the basic tasks, equipment, and safety hazards associated with trimming trees near energized power lines and equipment. At the conclusion of this course, participants should be able to identify safety hazards associated with tree trimming work and describe ways to avoid them. They should also be able to identify and describe the use of safety equipment, manual tools, and power tools that are commonly used for tree trimming work. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Tree Trimming, Part 2</b>	Tree Trimming, Part 2 is designed to familiarize participants with procedures and equipment typically associated with emergency line clearance work. Emphasis is placed on the safety aspects of the job. It is assumed that participants have completed Tree Trimming, Part 1 or have equivalent background knowledge. At the conclusion of this course, participants should be able to describe various aspects of emergency tree trimming work, including how to plan and perform a job safely. They should also be able to identify some of the tree cuts that are used for clearing trees and tree limbs from power lines. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Trenching and Excavation Safety</b>	This course covers safe work practices for excavation and trenching work. It is meant to be used as an introductory or refresher course for construction workers involved in digging or working in an excavation. It is based on OSHA Construction regulations and industry best practices.	0.5	Intermediate
<b>Trenching and Excavation Soil Properties</b>	This course covers the importance of soil properties and classifications when engaging in excavation work. It is meant to be used as an introductory or refresher course for construction workers who will be digging or working in excavations. It is based on OSHA excavation regulations and on recognized best practices.	0.25	Intermediate
<b>Trenchless Methods: An Introduction</b>	There is a tremendous need to rehabilitate pipes, especially sewer and water lines. In the U.S. alone, there are 1.2 million miles of sewer pipe and approximately 880,000 miles of water distribution pipes. In both cases, the operable life of the infrastructure is 50 to 100 years. The majority of these pipes were laid in the 1940's, after World War II, and most are 50 to 125 years old. Additionally, on-going maintenance is necessary to protect against pipe corrosion, root intrusion, structural failure and other problems. Trenchless technology includes a large family of methods utilized for installing and rehabilitating underground utility systems with minimal surface disruption and destruction resulting from excavation. This 1-hour online course presents an introduction to the most common types of trenchless technology used in the U.S. and provides a real-life example to help you determine the correct technology for the given project. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Triethylaluminium Safety Awareness</b>	This course will introduce and describe the characteristics of Triethylaluminium (TEAL). It will discuss the health hazards of TEAL and how to reduce exposure through workplace controls as well as how to mitigate danger through safe work practices and proper PPE.	1	Intermediate
<b>Troubleshooting Systems and Circuits</b>	Electrical problems may show up anywhere at any time. Some problems are as simple as an abnormal signal value that can be corrected by a minor adjustment. Other problems are not as easy to identify and correct, especially when the cause of the problem is in a non-electrical component or in another system. Regardless of the cause, electricians are responsible for zeroing in on problems whenever they occur and bringing things back to normal. A good way to ensure that the proper actions are taken in response to an electrical problem is to follow a troubleshooting procedure that is both systematic and logical. This course describes the basics of troubleshooting, general guidelines and action steps, and a seven-step troubleshooting method for solving problems.	1	Intermediate
<b>Truck Mounted Cranes</b>	Cranes are important pieces of equipment that are carefully designed and manufactured. When used properly, cranes provide a safe way to lift objects, and truck mounted cranes can be especially useful because they are mobile. However, cranes can pose many safety hazards. Cranes can tip over or contact electrical power lines. There is also the potential for moving or falling objects to strike workers, which is the leading cause of crane-related fatalities. Operators must be properly trained and everyone on the jobsite should be familiar with truck mounted crane safety. This course will describe common truck mounted crane types and components. The main focus of the module will be on the safe operation of truck mounted cranes.	0.5	Intermediate
<b>Turnover</b>	Error is an innate part of all human activity. Error reduction tools enhance the ability to minimize errors, reduce frequency of errors, and reduce severity of errors. In this activity, you will explore the conditional Turnover human performance tool and discover its guiding purpose of positive control and its impact on performance in the workplace. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Turpentine Awareness</b>	Turpentine, also called the spirit of turpentine, oil of turpentine, or wood turpentine, is a fluid obtained by distilling resin from pine trees and other coniferous trees. It is a colorless, volatile liquid with a strong odor. Turpentine is often used as a solvent or thinner for oil-based paints and varnishes. Working with or around turpentine is sometimes unavoidable, so it is critical that you use the proper PPE, follow standard procedures, and know how to handle leaks, spills, and other emergency situations. This course describes what turpentine is, its uses, the hazards it presents, and how to protect yourself from those hazards.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
Turret Truck Safety	A turret truck, also known as a swing-reach truck, is a forklift with forks that can pivot 180 degrees and traverse across its entire width. This allows pallets to be stored and picked up at right angles to the turret truck. Also, unlike a standard forklift, the operator compartment raises with the forks. Turret trucks are specially designed to operate in narrow aisles, where there is very little clearance on either side. Because of these unique design features and operating conditions it is important to become familiar with their operation and safety guidelines prior to operating a turret truck. This module covers common hazards, turret truck safety equipment, and safe operating procedures.	0.25	Intermediate
Underground Storage Tank Requirements (UST)	Any tank, and associated underground piping, with at least 10% of its volume underground is considered an underground storage tank (UST). Until the 1980s, most USTs were made of bare steel, which easily corroded. This allowed the tank contents to leak into the environment and contaminate soil and groundwater. So, beginning in 1984, Congress passed a series of laws to address leaking underground storage tanks that contain petroleum or other hazardous substances. The federal UST program sets minimum operating requirements and technical standards for tank design and installation, spill and overflow control, leak detection and response, and corrective actions. This course will summarize underground storage tank regulations.	0.5	Intermediate
Understanding Business Ethics	In LearnSmart Business Ethics LearnSmart Video Training you'll learn the important principles of ethics as they relate to your business and professional environment. Understanding and practicing ethical behavior plays a critical role in your professional career. Your ethical reputation is important because it sets the tone for how your actions are perceived by colleagues, customers and clients. Ethical behavior can make the difference when you or your company are in line for a new contract or business opportunity. Perhaps more importantly, there are often very strict laws and rules of conduct established by the authorities that you're obligated to follow. When you fail to meet these laws, the consequences can be severe both for you and your employer or company.	2	Intermediate
Understanding Concrete's Environmental Advantage	Environmental concerns are not new to humanity - they date back as long as there is recorded history. Civilizations have had to deal with pollution in many different forms, especially as societies began to grow and cities became more densely populated. The modern-day green movement in the United States can be traced back to the early 1970's with the beginning of the Earth Day movement and the founding of the Environmental Protection Agency, EPA. These efforts have been an attempt to draw attention to the impact humans have on the health and resources of the planet, and the importance of working toward sustainable living and development so future generations can continue to thrive here on earth. This course will take a detailed look at the many environmental advantages of ready mix concrete and how it is playing a growing role in green building design and construction. Participants will come away with a better understanding of how ready mix concrete can be used to minimize the environmental impact associated with construction and day-to-day building operations. They will be introduced to the life cycle methodology and shown how ready mix concrete contributes to earning LEED certification.	1	Fundamental
Understanding Construction Claims	This 2-hour interactive online course provides a basic overview of the five different types of construction claims that a contractor might have against an owner: Delay, Changed Work, Labor Productivity Loss, Acceleration, and Termination. It defines each type of claim and the subcategories within each, as well as defining the crucial concepts associated with each. It also provides a basic introduction to the various methods for calculating damages related to each type of claim, emphasizing the importance of the project schedule as an evaluation and analysis tool. The course material is supplemented with summaries of actual cases to illustrate how courts and boards rule on the different types of construction claims. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Intermediate
Understanding Fire Sprinkler Drawings and Calculations	Do you know what is required for a fire sprinkler system? The required technical fire sprinkler drawings and calculations must be reviewed and approved by the owner's representative; engineer or architect of record; building officials; and fire officials. Many commercial, industrial, and even residential buildings require a fire sprinkler system. This interactive online course will prepare the non-fire protection engineer to thoroughly review and understand complex fire sprinkler drawings to ensure a properly designed and installed system is provided and the health and safety of building occupants is addressed.	1	Intermediate
Understanding Gender and Gender Identity	Having an understanding of gender and gender identity is important in today's society. While it feels natural to describe people using the terms we were taught since early childhood, the female-male binary no longer applies to everyone. In this video we'll discuss what gender identity is and provide some tips for respecting everyone's deeply held sense of self.	0.2	Intermediate
Understanding HIPAA	In LearnSmart's Understanding HIPAA Video Training, individuals associated with the health care industry will learn the rights and responsibilities of both patients and employees with regard to medical information -- and how it must be gathered, stored, and managed. In addition, this training details the regulations surrounding how covered entities store, process, and transfer information.	4	Intermediate
Understanding Moisture Intrusion and Its Impact on Mold Growth	The basic role of a building is to protect the indoors from the outdoors. That includes water intrusion. Water intrusion can happen in many ways and can have a detrimental effect on the structure and the people within. This course studies the various forms of water intrusion; the physics of how it happens; its effects on building systems and materials; and ways to understand it, avoid it, and remedy it. It also illustrates the impact moisture intrusion has on mold growth, as well as the proliferation of other micro-organisms.	1	Fundamental
Understanding the Energy Independence and Security Act	The Energy Independence and Security Act of 2007 (EISA 2007) established energy management goals and requirements while also amending portions of the National Energy Conservation Policy Act (NECPA). This webcast will discuss the Federal energy management and water conservation requirements in several areas, including: Section 431 - Energy Reduction Goals for Federal Buildings, Section 432 - Facility Management/Benchmarking, Section 438 - StormWater Requirements, and other important high performance building requirements. This course will also discuss case studies of EISA implementation.	3	Fundamental
Understanding Workers' Compensation for Employees (V15)	What would happen if you were injured in an accident on the job? Who would pay your medical bills and compensate you for time lost from work? In the state of Florida, not all employers are required to provide workers' compensation insurance. Workers need to understand their rights and know if they are covered in the event of a work-related accident. The purpose of this 1-hour interactive online course is to educate employees about their legal rights under workers' compensation. The class explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventative measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and maintain a healthy workforce. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

## AEC Complete

Title	Description	Hours	Level
Understanding Workers' Compensation for Employers V14	Under federal and Florida State Law, employers have a legal obligation to provide workers' compensation benefits for workers injured on the job. Failure of eligible employers to provide compensation for injured workers may result in lawsuits and heavy fines, so employers need to know their rights and responsibilities. This 1-hour online course explains what workers' compensation insurance is and who needs coverage. It also discusses proper procedures in the event of an accident, and how implemented preventive measures, such as safety awareness and a drug-free workplace program, can reduce the occurrences of work-related incidents and control insurance costs. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Uninterruptible Power Supply (UPS) System Efficiency	Uninterruptible Power Supply (UPS) systems are installed to ensure that critical loads are not affected during an outage. However, they have different modes of operation to save energy while still providing the same back-up power. In this interactive online course we will examine the differences, how they can be measured and show the possibilities of saving energy without risking equipment downtime. Note: This course offers subtitles in Brazilian Portuguese and Spanish.	1	Fundamental
Universal Waste Storage and Handling	There are four main categories of universal waste: batteries, lamps, pesticides, and mercury-containing equipment. These special categories of hazardous wastes are meant to reduce the management burden and facilitate the recycling of universal wastes. This course will cover storage, container labeling, handling, and spill cleanup procedures for universal wastes.	0.5	Intermediate
Unreinforced Masonry Design	How is unreinforced masonry used in construction? This interactive online course will focus on unreinforced masonry design and how the use of this design method is employed every day for buildings, foundations, and interior partitions. Unreinforced masonry is often used for building foundations and exterior walls, for fire separation walls on building interiors and used where compressive resistance to loads is required. Masonry design is rarely taught in college design courses so practitioners must research how to use this material in design. This course is intended to close the knowledge gap and provide a background in the use of this material for design.	2	Intermediate
Unstable, Reactive, and Energetic Compounds	Chemical reactions are part of our daily lives. From cooking in the kitchen, to driving a car, to handling chemicals at your workplace, these reactions are commonplace. Dangerously reactive liquids and solids can be extremely hazardous. Accidental or uncontrolled chemical reactions are important causes of severe personal injury and property damage. Unstable, Reactive, and Energetic Compounds course will explain the basic terminology relating to chemical hazard classes and reactivity.	0.5	Intermediate
Urban Drainage – Design of Storm Water Detention and Retention Facilities	This course will cover the information presented in Chapter 8 of the Hydraulic Engineering Circular by examining the procedures for the design of storm water detention and retention facilities in conjunction with highway design. This course provides a comprehensive and practical guide for the design of storm drainage systems associated with transportation facilities. Design guidance is provided for storm drainage systems which collect, convey, and discharge storm water flowing within and along the highway right-of-way. Methods and procedures are given for the hydraulic design of storm drainage systems.	2	Advanced
Urban Sprawl Laws	The social, environmental, and economic state of our communities, as well as the health of our population, is affected by our urban environment. Historically, the central objective of planning laws and land use regulations was to safeguard negative consequences associated with the built environment. Concern about rapidly developing urban regions has prompted state legislatures to pass planning laws to manage urban development. This interactive online course will focus on traditional growth management regulations and development restrictions employed in the local, regional, and state policy-making arenas. This course will also discuss a new approach heralded by California in Senate Bill 375 that focuses on regulating air quality standards through land development patterns. The types and functions of both traditional and new planning reform laws are the focus of this course.	2	Fundamental
Use of Ohm's and Kirchhoff's Laws in DC Circuits	The relationship between current, voltage, and resistance was described by George Simon Ohm in a form that commonly is referred to as Ohm's law. Ohm's law states that current is equal to voltage divided by resistance. This law is often expressed using symbols for each quantity. The letter I is used to represent current, E represents voltage, and R represents resistance. Using these symbols, Ohm's law can be expressed as $I = E/R$ . Kirchhoff's two laws also reveal a unique relationship between current, voltage, and resistance in electrical circuits that is vital to performing and understanding electrical circuit analysis. In this course, participants will learn how to use these laws when working with direct current (DC) circuits.	1	Intermediate
Use of Steel in Design & Construction	This 1-hour interactive online course discusses the use of steel in design and construction, with the primary focus of the design segment relating to design of buildings, and not entailing design of the myriad of other things in modern society that are made from steel. We will start with a look at the methods of manufacturing various types of steel. The resultant physical characteristics of different types of steel will be examined to understand those applications where the use of different steel is recommended. Techniques for proper use and erection of steel in buildings will be discussed, in conjunction with design considerations. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Using Electrical Test Equipment	Anyone who uses test equipment should be capable of operating and maintaining that test equipment. This capability must be the result of formal training and demonstrated through on-the-job training. Completion of the training process allows a person to be qualified. A person who does not meet this requirement should work under the direct supervision of a qualified person. This interactive online course is designed to aid in the training process by introducing participants to the basic principles involved in using electrical test equipment.	1	Intermediate
Valves: Basic Types and Operation, Part 1	In most industrial facilities, process systems handle many different types of fluids. The flow of these fluids through plant piping systems is controlled by valves. To keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. In this interactive online course, we will discuss the various uses of valves, their parts, and valve connections.	0.5	Intermediate
Valves: Basic Types and Operation, Part 2	The purpose of this course is to provide participants with a general understanding of the basic types and operation of valves. The flow of fluids through plant piping systems is controlled by valves. In order to keep fluids flowing smoothly, operators need to know how valves operate and how to keep them working properly. At the end of this course, participants will have a better understanding of the types, purposes, and applications of various valves.	1	Intermediate
Valves: Electric and Hydraulic Actuators	This course is designed to introduce participants to various types of electric and hydraulic actuators that are used to control valves in process systems. After completing this course, participants should be able to describe the basic operation of solenoid actuators, motor-operated actuators, and various types of hydraulic actuators. They should also be able to explain the function of a pilot valve and describe problems associated with hydraulic actuators.	2	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Valves: Introduction to Actuators</b>	Some of the valves that are used to control the flow of fluids in process systems have to be opened, closed, or throttled frequently. Manually positioning these valves using handwheels or levers is not always practical. Instead of handwheels or levers, actuators are often used to position the valves. This module is designed to introduce participants to actuators in general and pneumatic actors in particular.	1	Intermediate
<b>Variable Speed Drives: Common Applications</b>	Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. In addition, the motor and controller combination, the drive, is frequently integrated into an existing production process or system. This course will examine some of the common applications for VSDs.	1	Intermediate
<b>Variable Speed Drives: Controllers and Troubleshooting, Part 1</b>	Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems.	1	Intermediate
<b>Variable Speed Drives: Controllers and Troubleshooting, Part 2</b>	Troubleshooting today's variable speed drives (VSDs) demands intimate knowledge of the systems in which they are installed, of the motors at the business end of the drive, and especially of the controllers that run them. This course will focus on the VSD controller, both as a troubleshooting tool and as a system component that may need troubleshooting itself. The course will examine troubleshooting from the controller, including a review of basic safety procedures, and the selection of test instruments. In addition, it will describe how a controller can help locate many of the most common operating problems.	1	Intermediate
<b>Variable Speed Drives: Installation</b>	Variable speed drives (VSDs) must always be carefully matched to the work that needs to be done. This can be easy when replacing a drive with an identical motor or controller. But other times, when identical replacements are not available, it is necessary to understand the various aspects of VSD applications. This course will examine a typical VSD installation, how to get it running, and how to keep it running while making its operation and maintenance as trouble-free as possible.	1	Intermediate
<b>Variable Speed Drives: Introduction to VSDs</b>	Variable speed drives (VSDs) are used throughout the industry to electronically regulate the speed and the torque of motors. With nearly half the energy in the world consumed by rotating machinery, the applications for VSDs are enormous, and their use is spreading rapidly. When applied and installed properly and when operated and maintained correctly, VSDs can substantially reduce the power required for the work being done and can provide the precision control that is now demanded by modern industry throughout the world.	1	Intermediate
<b>Variable Speed Drives: Programming AC Controllers</b>	This course describes alternating current (AC) controller setup procedures, AC controller frequency options and other parameter settings, and AC controller I/O configuration. The course illustrates how to interpret AC controller fault monitoring, alarms, and diagnostics. Finally, the course explains flux vector programming.	1	Intermediate
<b>Variable Speed Drives: Programming DC Controllers</b>	Wherever variable speed drives (VSDs) are used, they must be programmed to meet the needs of the specific application. Sometimes this means little more than firing them up and letting them run, maybe just punching the drive up to the required speed. But more often it means a variety of settings must be programmed into the drive. This course will focus on programming the controllers for variable speed direct current (DC) motors.	1	Intermediate
<b>Variable Speed Drives: System Troubleshooting, Part 1</b>	Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems.	1	Intermediate
<b>Variable Speed Drives: System Troubleshooting, Part 2</b>	Troubleshooting variable speed drive (VSD) systems effectively almost always requires in-depth knowledge of the controller, but it also requires broad knowledge of the systems that the drives are often a part of. When things go wrong, the problem is usually not in the controller, but somewhere in the system: in the motor, in the drive's links to the system, or in the electrical supply for the drive or the system. This course will focus on troubleshooting VSD systems.	1	Intermediate
<b>Variable Speed Drives: Systems and Integration</b>	When variable speed drives (VSDs) are used in industrial applications, they usually are not used by themselves. Although single motors and single controllers are sometimes used in isolated applications, the more usual application is one in which many motors and many controllers are interlinked into a larger automated system that includes many types of processes. This course will examine the ways in which VSDs and automated systems are linked together.	1	Intermediate
<b>Vehicle-Mounted Aerial Device Safety</b>	Vehicle-mounted elevating and rotating work platforms (also called aerial lifts, aerial devices, and bucket trucks) can provide temporary elevated workspaces as an alternative to ladders or scaffolding. This interactive online course will list the types and categories of vehicle-mounted aerial devices (VMADs) and their main components, discuss safe work practices when working with VMADs, requirements for owners, users, and operators, as well as inspection requirements for VMADs.	0.75	Intermediate
<b>Vermont Land Surveyor 4 Hour CE Program #4</b>	This four part program discusses everyday decisions that professional land surveyors face and examines a surveyor's conduct in the context of the National Society of Professional Surveyors (NSPS) Creed and Canons. This course focuses on the first canon - refraining from conduct that is detrimental to the public. The scenarios presented in this course affirm the underlying professional principle that surveyors are guided by a common moral understanding.	4	Fundamental

## AEC Complete

Title	Description	Hours	Level
<b>Vermont Land Surveyor 6 Hour CE Program #1</b>	Don Wilson presents a 3-part, interactive course covering court decisions and interpreting land descriptions. Part 1 of this course presents four court decisions covering basic issues of surveying including defining what a survey is and dealing with overlapping descriptions. Principles of retracement, original survey, senior-junior conveyancing, apportionment and historical title analysis are discussed and illustrated. Part 2 of this course presents five court decisions covering principles of interpretation and construction to be applied to land descriptions. The significance of original land descriptions, ambiguity, references, meanings of words and phrases, and official plats are covered. Some of the court cases included are Harvey v. Inhabitants of Sandwich, 152 N.E. 625, 256 Mass. 379 (1926), Wilson v. DeGenaro, 415 A.2d 1334 (Conn., 1979), Perry v. Buswell, 113 Me. 399 (Maine, 1915), Cragin v. Powell, 128 U.S. 691 (Louisiana, 1888) and Peacher v. Strauss, 47 Miss. 353 (1872). Part 3 of this course deals with some of the basic rules of construction for interpreting land descriptions and resolving ambiguities therein. The intent of the parties is the primary requirement, which must be determined from the language of the description viewed in light of the surrounding circumstances at the time.	6	Advanced
<b>Vermont Land Surveyor 8 Hour CE Program #2</b>	Don Wilson presents a 3-part, interactive course covering court decisions, how they arose, and what are their limitations and applications. Part 1 of this course presents four court decisions dealing with basic surveying procedures for land parcels. Topics discussed are property line location, evidence, lost & obliterated corners, legal principles and the resolution of particular problems. Part 2 of this online course discusses the basics of boundary retracement. Discussion centers on following ancient boundaries, stressing the use, and correction of magnetic bearings. Part 3 of this course includes seven significant cases in the area of boundary retracement. Basic procedures are outlined by the courts in these decisions.	8	Advanced
<b>Vermont Land Surveyor 8 Hour CE Program #3</b>	Don Wilson presents a 3-part, interactive course covering easements and reversion rights. Part 1 of this course deals with the basic elements of easements and rights in land, particularly those interest which are less than absolute, or fee simple, ownership. Part 2 contains information on the creation, alteration and termination of public highways and other types of roads. Part 3 covers reversion rights that occur when an easement is terminated. In order to have a full understanding of the existence of easements and their resulting reversion rights.	8	Advanced
<b>Violence in the Workplace</b>	Every year in the U.S., there are an estimated 2 million reported cases of workplace violence. NIOSH defines workplace violence as any act or threat of physical violence, harassment, or intimidation that occurs in the workplace. It can be instigated by criminals, customers, co-workers, or someone you have a personal relationship with. This course will raise awareness of the consequences of workplace violence and describe how to recognize warning signs so you and your coworkers can avoid these dangerous situations.	0.25	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #1</b>	Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. Several changes were made for branch circuit conductors, feeder conductors and service conductors in Articles 210, 215, and 230, and, as always, they are some of the biggest in the entire Code. Changes include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings(!), clarifying how to size feeders, and new listing rules for service equipment, and others as well.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #2</b>		3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #3</b>	Part 1 of this 3-part course covers Chapter 4 of the 2017 NEC which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics covered in part 2 include 404.2 C, Switches Controlling Lighting Loads. We did a lot of good work in that section. 404.9 B, Grounding of Switches. 404.22, Electronic Lighting Control Switches. 406.2, Definitions. 406.3, Receptacle Ratings and Types. 406.4, General Installation Requirements. 406.5, Receptacle Mounting. 406.6 D, Receptacle Face plates with Night Lights or USB Chargers. 406.9 B for Receptacles in Wet Locations. And finally, 406.12, Tamper Resistant Receptacles. Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies is covered in part 3 of this course. We will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	3	Intermediate
<b>Virginia 2017 NEC 3 Hour CE Program #4</b>	Part 1 of this interactive online course covers The National Electrical Code (NEC) standards that govern the installation of electrical wiring and equipment. Incorrect wiring procedures could result in loss of life and property. Keeping up with the latest changes to the NEC is critical to ensuring safe electrical wiring practices. Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards. Part 2 of this course covers Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Notable changes include new requirements for signs with retrofitted illumination systems and changes to wiring methods for swimming pools and similar installations. The 3rd part of this course covers proper wiring of electrical systems. Understanding the latest code requirements will ensure safe installation and operation of electrical systems for years to come. Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820]. Notable changes include cable routing assemblies and communications raceways for control circuits, a major change to address fires from limited energy circuits, revisions to requirements for unlisted cables entering buildings, grounding of primary protectors, uses permitted for under-carpet communications wires and cables, and separation requirements for coaxial cables	3	Intermediate
<b>Volatile Solvent Spill Response</b>	Spills involving volatile solvents are a unique class of spills. This is due to the fact that in addition to any damage and pollution directly caused by the spilled liquid, evaporation of a volatile solvent will contaminate the air in the vicinity with the gaseous form of the liquid. Because the vapors from most volatile solvents are flammable and toxic to some degree, the response to this type of spill must take the presence of the vapor into consideration.	0.25	Intermediate

## AEC Complete

Title	Description	Hours	Level
<b>Walkable Communities</b>	You can be a leader in the growing trend of communities that support more social interaction, physical fitness, and diminished crime and social problems. You can develop economically and naturally sustainable urban environments that lead to whole, happy, healthy lives for the people who live in them. This webcast gives you the information and tools you'll need to set and reach those goals. You'll learn preferred choices of transportation, street design, and guidelines for developing walkable (non-motorized) communities.	1	Intermediate
<b>Walking and Working Surfaces</b>	Slips, trips, and falls constitute the majority of general industry accidents, second only to motor vehicle accidents. They cause 15% of all accidental deaths, and are third only to motor vehicles and violence as a cause of fatalities. The OSHA standards for walking and working surfaces apply to all permanent places of employment, except where only domestic, mining, or agricultural work is performed and if appropriately applied, can reduce lost work time. This interactive online course details the OSHA standard in a practical format with easy to implement solutions to provide a workplace that is free from hazards to better protect the workplace and reduce unnecessary costs.	0.5	Intermediate
<b>Warehouse and Loading Dock Safety</b>	Covers hazards and safety guidelines associated with warehouses and loading docks, including personal protective equipment (PPE), importance of housekeeping, mobile equipment, driving safety, fire extinguishers, and emergency procedures.	0.5	Intermediate
<b>Warning Signs and Labels (BBWSALOCEN)</b>	This course discusses warning signs and labels, including the types of signs and tags, hazardous product labels, and shipping labels. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Intermediate
<b>Washington Electrical Contractor 4 hour program #1</b>	This 4-hour course is formatted in 2 lessons. Each lesson has a test which must be passed with a minimum score of 70% and a survey which must be completed before proceeding to the next lesson. The lessons are listed below: Lesson 1: Safety: Electrical Part 1 - Hazardous Location, Clearances & Safety Practice (RV-10743) Welcome to this 2-hour interactive online course that is the first of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices that insulate you from electricity's power anytime you work with or near electrical equipment or components. Specifically, Part 1 looks at: Fundamentals of electricity & associated hazards Using proper materials and components Equipment grounding Lesson 2: Safety: Electrical Part 2 - Hazardous Location, Clearances & Safety Practice (RV-10744) This 2-hour online course is the second of a two-part series which introduces you to many workplace situations that require you to work safely with electricity. You'll learn how and why electricity can be dangerous. You'll also learn about various methods used for protection. Safety begins with the careful installation of electrical components by means of approved wiring methods. You should use safety procedures and practices tha	4	Intermediate
<b>Washington Electrical Contractors: 2017 NEC Changes</b>	Part I Chapter 4 of the 2017 National Electrical Code contains requirements for appliances and equipment. Several changes were made in Article 400 for flexible cords and flexible cables, 408 for panelboards, 422 for appliances, 440 for air conditioning and refrigerating equipment, and others. In this interactive, online course, we will discuss some notable changes including new rules for service panelboards, new listing requirements for appliances, new requirements for marking the available fault current, and a new equipment grounding conductor requirement for some air-conditioners. Part II Chapter 2 of the 2017 National Electrical Code (NEC) contains requirements for wiring of grounded conductors, branch, feeder and service conductors. This interactive, online course covers changes that include new and revised rules for GFCI and AFCI protection, dwelling unit circuiting and receptacles outlet revisions, fixing the electric service receptacle rule, adding required lighting, adding receptacles in commercial buildings, clarifying how to size feeders, and new listing rules for service equipment, and others as well. Part III Articles 725 through Chapter 8 of the National Electrical Code (NEC) contain requirements for limited energy and communications systems. This interactive online course will teach you about changes made in the articles for remote-control, signaling, and power-limited circuits [725]; communications circuits [800]; and coaxial cables [820].	4	Fundamental
<b>Washington Electrical Contractors: 2017 NEC Changes General Requirements</b>	Part I Chapter 1 of the 2017 National Electrical Code (NEC) contains definitions and general requirements for electrical installations. Several definitions were added, revised or relocated in the 2017 NEC. New and revised requirements for equipment installation, labeling, certification and working space will also be discussed. Part II Chapter 3 of the 2017 National Electrical Code (NEC) contains requirements for wiring methods, enclosures and boxes. Several changes were made in Articles 312 and 314. In this interactive online course, we discuss notable changes that include the addition of a new column in Table 312.6(A), new box fill requirements for barriers in boxes, clarifying the rules for cables entering enclosures, and new rules for separable attachment fittings. Part III Chapter 3 of the 2017 National Electrical Code contains requirements for conductor sizing and wiring methods. Several changes were made in Article 310 and the articles covering cable and raceway wiring methods [320-399]. In this interactive, online course, we will discuss several changes in Chapter 3 including 310.15(A)(2) Selection of Ampacity, 310.15(B)(3)(c) Raceways and Cables Exposed to Sunlight on Rooftops, and 310.15(B)(7) Single-Phase Dwelling Unit and Feeder Service Conductors. Part IV Chapter 5 of the 2017 National Electrical Code (NEC) contains requirements for special occupancies. In this interactive online course, we will review several changes that were made in Articles 500 through 516 for hazardous locations. Notable changes include the relocation of fourteen definitions to Article 100, a surprising new allowance for wiring methods in Class I locations, underground wiring changes for commercial garages and fuel dispensing locations, and new fuel storage classification requirements.	4	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Washington Electrical Contractors: 2017 NEC Changes Grounding &amp; Bonding</b>	Part I Article 240 and 250 of the National Electrical Code (NEC) contain the requirements for overcurrent protection and for grounding and bonding. Several changes were made in Articles 240 and 250. In this interactive, online course, we will discuss notable changes to the 2017 NEC. Such changes include the addition of arc energy reduction requirements for fuses, additional options for the grounding of separately derived systems, changes to the allowed and prohibited types of grounding electrodes, recognizing new options for intersystem bonding, clarifying the rules for parallel conductors, and others. Part II In this interactive online course, you will get the updates to Chapter 4 of the 2017 NEC, which contains the rules for equipment, including switches and receptacles. Several changes were made in Article 404 for switches and in 406 for receptacles. The topics we're going to cover are 404.2 C, Switches Controlling Lighting Loads. Part III In this interactive online course, we cover Chapter 6 of the 2017 National Electrical Code (NEC) and the changes it contains for special equipment requirements. Several changes were made in the articles for special equipment, including signs, electric vehicle charging systems and swimming pools. Part IV Chapter 5 of the 2017 National Electrical Code (NEC) contains the requirements for special occupancies. This interactive online course will teach you about several changes that were made in the articles for special occupancies, including health care facilities and RV parks as well as marinas and boatyards. Notable changes include, new allowable wiring methods and equipment for health care facilities, revised receptacle requirements at RV parks, and more restrictive ground fault protection and signage requirements at marinas and boatyards.	4	Fundamental
<b>Washington Electrical Contractors: International Building Code Essentials - Fire and Health Safety</b>	Part I of this interactive online course teaches you about the International Building Code and how it's designed to limit the spread of fire inside and outside of buildings. You will learn about active and passive fire protection and the different ways buildings and occupants are protected from fire. Part II discusses Health Safety. For people to be healthy, we must have certain basic things. We need adequate light to work or live in a building. We need fresh air that is free from contaminants. When it is cold, we need to be provided with heat to keep from getting sick. We also need freshwater and sanitary waste facilities.	2	Fundamental
<b>Wastewater Treatment and Reclamation: Asset or Liability</b>	Historically, wastewater treatment started as risk reduction for human health and welfare, migrated to environmental risk reduction, and has now matured into resource recovery and revenue generation. Technology and common practices are in place to treat water as a sustainable resource; we simply can no longer afford to use it once and throw it in the ocean nor can we afford the liability of not treating water to our best abilities to protect human health and the environment. In this interactive online course, we will cover specifics, metrics, and detailed examples about recovery of the water from wastewater. We discuss how to manage the design of wastewater facilities to reduce environmental, personal, and public health risk from insufficiently treated potable and reuse water supplies. We will also show how to reduce costs in operation of a proper wastewater treatment plant.	1	Intermediate
<b>Water Industry Hydraulics</b>	This interactive online course covers the concepts, calculations, and operational uses of hydraulics in the water industry, and will examine the physics behind certain operations and processes within the water treatment industry. Subjects included in the course are density and specific gravity, pressure and force, head, head loss, pumping rates and pump heads, flow rates, and flow measuring devices. This course will examine each of these concepts in detail and explain their application.	1	Intermediate
<b>Water Well Design</b>	Extracting groundwater for use as public water supply, irrigation, or industrial supply presents a challenge to Engineers, Geologists, and Well Drilling Contractors. Water wells must be designed to fit existing natural conditions. Factors including aquifer parameters (location, depth, rock types, and water yield capacity), geology and water quality, are unique to every location. The professional engineer, geologist, and well driller need to be informed of these factors to complete a successful water well construction project. This two hour interactive online course will introduce you to the necessary steps in a water well design project. Proceeding with researching of local groundwater conditions to obtaining information necessary to locate and plan a well, this course presents techniques for designing a water well. You will learn valuable skills in the phases necessary to implement a well construction project. This course includes a multiple choice quiz at the end. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Advanced
<b>Water-Based Fire Suppression Systems</b>	With 3,000 deaths and 16,000 injured each year, fire continues to make its mark on society. In addition, about 100 firefighters each year die in the line of duty. Property losses due to fire reach almost \$12 billion a year, and most of these deaths and losses are preventable. In this interactive, online course, you will learn the basic, but critical, aspects of water based fire suppression systems. This course will discuss deluge systems, preaction systems, dry pipe systems, water mist systems, standpipe systems, and fire hydrants. The information you gain from this course will enhance your ability to appreciate the challenges of the fire protection system designer, trying to integrate their system with other disciplines. Utilizing this real-life knowledge will ensure a safe and code compliant project regardless of your contribution to the project.	1	Fundamental
<b>Welding Safety</b>	Welding is a very effective workplace technique used to fuse or cut metal, though it is not without dangers. Knowing the hazards of welding and following the correct procedures will help prevent personal injury, fatalities, and property damage. This course will cover welding-specific personal protective equipment, arc and gas welding, brazing and soldering, as well as the hazards they present. Lastly, this course discusses safety procedures used to minimize the exposure to different welding hazards.	0.5	Intermediate
<b>Wetland Delineation 1: The Basics</b>	This 2-hour interactive online course describes technical guidelines and methods using a multi-parametric approach to identify and delineate wetlands for the purposes of Section 404 of the Clean Water Act. This course is based upon the Corps of Engineers Wetland Delineation Manual published in January 1987. Modifications and clarifications have been made to the text in accordance with regulations promulgated since its original release. There will be a multiple-choice quiz at the end of this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	2	Fundamental
<b>Wetland Delineation 2: Methodology</b>	This 4-hour interactive online course is a continuation of the US Army Corps of Engineers Wetland Delineation Manual-based, 'Wetland Delineation 1: The Basics' which is a prerequisite for this course. This course begins with material covered in Part IV of the manual. Part IV contains sections on preliminary data gathering, method selection, routine determination procedures, comprehensive determination procedures, methods for determinations in atypical situations, and guidance for wetland determinations in natural situations where the three-parameter approach may not always apply. There will be a multiple-choice quiz at the end of each scenario. The student will also need Adobe Acrobat to download the reference material included in this course. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	4	Fundamental



## AEC Complete

Title	Description	Hours	Level
What's New in Excel 2019	Updates In Excel 2019 Optimize The Worlds Most Popular Spreadsheet For Modern Business Making It Easier To Draw, Add Graphics, Manipulate Text, and More! The updated Microsoft Excel 2019 includes new tools and capabilities that can help regular users and new users alike.	0.75	Intermediate
What's New in PowerPoint 2019	Impress Your Peers with the Latest and Greatest Features of PowerPoint 2019! Microsofts latest release of PowerPoint 2019 packs quite a punch. With 3D models and vector graphics, your presentations can be more professional and visually pleasing than ever before. The new Morph transition and Zoom features can turn a boring slideshow into a guided tour. Updates to the Recording features make it easier than ever to create and share recorded presentations. Last but not least, with added features for Translation, Dictation, and Accessibility, PowerPoint is now truly a tool for everyone.	1.25	Intermediate
What's New in Word 2019	New Editing and Image Features Improve The Worlds Most Popular Document App The new Microsoft Word 2019 includes a slew of new tools and capabilities that can help regular users and new users alike.	1.25	Intermediate
What's New in Adobe CC 2015?	Adobe Certified Expert Amy Roberts takes us through all the new features and updates in Adobe Creative Cloud 2015s Premiere Pro, After Effects, Adobe Stock, and Audition, with quick looks at new mobile collaboration tools Adobe Hue, Premiere Clip, and Adobe Color.	1.5	Intermediate
What's New in Office 2016?	Learn how Office 2016 makes it easier than ever to save your work to the cloud, share and collaborate with others, and produce professional documents. Microsoft Office 2016 is an evolutionary improvement that refines dozens of features and adds a few new tricks too. In this course Kelly Vandever and Jason Farr explore the improvements to Microsoft Office in 2016.	1	Intermediate
Wind Design Using ASCE 7-10	This course discusses how to use the wind load provisions of ASCE 7-10 Minimum Design Loads for Buildings and Other Structures. The course covers the basics of wind engineering including the atmospheric and aerodynamic effects of wind on buildings. The changes recently adopted for use in ASCE 7-10 will be a prominent part of the material including revised wind speed maps and a building classification system based on risk of a natural hazard to the building or contents, instead of occupancy as used in previous versions of the standard. Several methods for determining wind pressures will be described including those that utilize tabular results. The course will conclude with a couple of worked example problems to illustrate the concepts and use of the ASCE 7 standard.	3	Intermediate
Wind Design Using ASCE 7-16	Have you kept current with ASCE's building design provisions? This interactive online course will describe the wind design changes that have occurred in ASCE 7-16 and how those changes will affect the practice of wind design when the 2018 building codes are adopted by local jurisdictions or when practitioners begin to use the revised standard.	2	Intermediate
Windows 10 Essentials	This Course Is For People New To Windows 10 - Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality. When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. Windows 10 combines the best features of Windows 8 with a more traditional navigation structure and layout, plus some new modern benefits.	1	Fundamental
Windows 8.1 Essentials	This Course Is For People New To Windows 8 Taking This Course Will Help You Understand The New Operating System Navigation, Advantages, And Functionality When Microsoft released Windows 8 they surprised a lot of PC owners. The interface and basic functionality were different from any previous Windows operating system. In fact, Windows 8 represents the biggest change in the Windows operating system since Windows 95.	0.5	Fundamental
Winning Proposals 1: Preliminary Steps & Planning Strategies	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the first chapter of the series and explores the preliminary steps and considerations that should be taken before writing a proposal. It covers RFP answering and review, how marketing plays a role, proposal writing costs, proposal types and opportunity assessment. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Winning Proposals 2: Effective Design & Development	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the second chapter and discusses effective ways to develop proposals that cater to the individual needs of the prospective client. The course looks at proposal analysis, including SWOT and IFBP analysis. It also covers typical client hot buttons, client wants and objections, client interview questions, proposal themes, and managing the proposal team and process. The course wraps up with a look at strategy planning tools including brainstorming, tree diagrams and contingency diagrams. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
Winning Proposals 3: Components of a Successful Proposal	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour online course is the third chapter of the series and focuses on the technical elements of a proposal. The course covers important components such as the cover letter, executive summary, resumes, references, and federal forms. It also takes a look at your scope of services and schedule, as well as common errors made in preparing the scope. You'll review helpful information on presenting your schedule and budget, as well as setting your pricing strategy. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental

# AEC Complete

Title	Description	Hours	Level
<b>Winning Proposals 4 &amp; 5: Final Considerations &amp; Evaluations</b>	Proposals are the first and most important link to getting in the door with a client. Yet firms spend an average of between \$5000 and \$9000 per proposal, only 30% of which succeed. It is crucial that your completed proposals stand out in a sea of look-alikes. It is just as important that you determine which proposal opportunities you should chase, and how much time and money to allocate to each opportunity. This online course series on Winning Proposals from PSMJ Resources will help you develop the skills you need to create a strategic, polished proposal - every time. This 1-hour interactive online course is the fourth and fifth chapters of the series and explores the 'final touches' you should consider for your proposal. The impact of important elements such as font styles, color choices, graphic selections and paper types are discussed. The course also covers packaging your proposal including binding, covers, dividers and paper. You'll also learn what it means to put together a 'Red Team' to critique your proposal. The course wraps up with a look at delivering, debriefing and post-analysis of your proposal. Vector Solutions has a long history of providing industry-specific content for its customers. While this course and its content remain accurate and functional within our systems, the look and feel may not match our more modern offerings.	1	Fundamental
<b>Wire Rope Basics</b>	Wire ropes are used on machines that lift and move heavy loads because they are strong, durable, and resistant to abrasion. They are commonly used in many industrial applications such as wire rope slings, derricks, cranes, hoists, and many more. In this course, you will learn about the basic construction of a wire rope as well as the different core types, strand materials, and rope finishes available for wire ropes. You will also learn the meaning of lay and about different lay types. This course ends with a description of the different construction types, wire rope design compromises, and a wire ropes maximum working load.	0.5	Intermediate
<b>Wire Rope Safety and Operation</b>	Wire ropes are used on machines that lift and move heavy loads. Because of the potentially high loading on wire ropes, they can be one of the most dangerous pieces of equipment at a worksite. In this course, you will learn which personal protective equipment to wear while using wire ropes, safety guidelines for working with wire ropes, and how to recognize potential wire rope hazards. Because of the potential for accidents, knowing how to properly use and safely work around wire ropes is crucial to your safety and the safety of your co-workers.	0.25	Intermediate
<b>Wood Design Using the 2012 Wood Frame Construction Manual</b>	Knowing the correct wind speed for the area in which you are building a wood frame structure is crucial to the safety of the building's inhabitants. This interactive online course will describe how to use the 2012 version of the American Wood Council's Wood Frame Construction Manual (WFCM). This version incorporates the use of wind speed maps from ASCE 7-10 and the design of both vertical and lateral load paths using the WFCM. There are many nuances to the correct use of this manual and many of these will be covered to help the practitioner correctly use this document that is referenced in the International Building and Residential Codes.	3	Intermediate
<b>Work Life Balance</b>	Do you live to work or work to live? In this course you will explore your motivation and priorities, and discover how the answers to strategic questions can help you create a healthy rewarding balance between the activities in your life. Through interactive assignments and a rich multimedia process, this course will help you realign with your priorities and experience the life you desire.	0.5	Intermediate
<b>Work Practices of the Mold Remediation Contractor</b>	Work practices of the mold remediation contractor are the everyday hands-on methods that ultimately make a project succeed or fail. This course will provide the keys to assessing mold contaminated materials and contents, and assist the remediation professional in the decision making of whether they should be disposed or cleaned, and how to effectively clean them.	1	Fundamental
<b>Work Zone Driving Hazards</b>	Work zones or construction zones are some of the most risky locations on any road. In the United States, a crash occurs in a work zone every 5 to 6 minutes. These crashes result in dozens of serious injuries every day and multiple fatalities each week. This course will identify why work zones are hazardous and describe strategies to reduce your risk of a crash in a work zone.	0.25	Intermediate
<b>Work Zone Safety</b>	A work zone is an area of roadway associated with construction, maintenance, or utility work activities. Work zones are typically marked by signs, channeling devices, pavement markings, and/or work vehicles. Because they are often adjacent to active roadways, work zone workers are exposed to significant risks. Motorists, cyclists, and pedestrians can also face significant risks. Roadways and work activities differ, and weather, traffic volumes, and local environments also vary, so a one size fits all approach to work zone safety is not appropriate. However, there are policies, procedures, and guidelines which do apply to all. These are covered in this course.	0.5	Intermediate
<b>Worker Right to Know (RTK)</b>	Workers have the right to know and understand the hazards presented by the chemicals they use and how to work with them safely. Employers must maintain a list of all chemicals on site and provide employees with safety data sheets, which contain detailed information about the chemical and its hazards. This module is designed to ensure workers know what information should be provided to them and to help them understand that information. It describes the requirements of the Right to Know Standard and each section of a safety data sheet.	0.5	Intermediate
<b>Working Effectively with Building Officials and Inspectors</b>	Who is an Authority Having Jurisdiction? How should you communicate with them? Anyone associated with building design and construction will eventually interact with a building official or inspector. This includes Fire Marshals, Health Departments, Planning Departments, local gas and electric companies and water and sewer departments. Having a positive and professional relationship will go a long way in creating a cost effective, timely and safe project. This interactive online course will present a number of techniques to use to ensure a productive outcome including: knowing the applicable codes, being professional, first impressions, understanding the role of the local AHJ, knowing when to appeal an unfavorable ruling, knowing when to accept an unfavorable ruling, and establishing your credentials.	1	Fundamental
<b>Working Over or Near Water</b>	Working over or near water can expose workers to a range of hazards, including injuries from falls, hypothermia, and drowning. This course discusses best practices for working over or near water, including the proper use of common types of personal flotation devices (PFDs). This course also offers information on what to do in man overboard (MOB) situations, including survival tactics and recovery practices.	0.47	Intermediate
<b>Workplace Hazardous Materials Information System (WHMIS)</b>	The Workplace Hazardous Material Information System (WHMIS) is a hazard communication system that ensures Canadian workers are provided with sufficient information to understand the hazards of the chemicals they may be exposed to in their workplace. WHMIS requires employers to communicate hazard information by labeling containers, providing safety data sheets, and training employees to recognize hazardous materials and how to protect themselves and their coworkers. This course provides an overview of WHMIS requirements.	0.5	Intermediate

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<b>Worksite Safety 01: OSHA Safety Introduction</b>	The Occupational Safety and Health Administration was founded in 1971 to address the rights and responsibilities of employees and employers in the national workplace in a cohesive manner. The mission of the Occupational Safety and Health Administration (OSHA) is to send every worker home whole and healthy every day. Since the agency was established in 1971, workplace fatalities have been cut by 62 percent and occupational injury and illness rates have declined 40 percent. This Introductory course covers a bit of the history and functions of OSHA and how it serves to benefit workers in ways that were unprecedented before its existence. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 02: OSHA Electrical Safety</b>	OSHA's electrical standards were put in place to help minimize deaths and injuries from dangers such as electrocution, burns, electric shock, fires, and explosions. This course examines the main causes of different types of hazards and details precautions for preventing accidents. It looks specifically at the requirements of 29 CFR 1926, Subpart K - which covers the design characteristics of safe systems for use when installing and using electrical systems. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	2	Fundamental
<b>Worksite Safety 03: OSHA Fall Protection</b>	Each year, on average, between 150 and 200 workers are killed and more than 100,000 injured because of falls at construction sites. OSHA's construction industry safety standard for fall protection 29 CFR, Subpart M, outlines systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects. Here, we outline the basics and provide some do's and don'ts for novices and those who need a refresher course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 04: OSHA Struck-By &amp; Caught-Between Accidents</b>	Struck-by and caught-between accidents are major causes of injuries and fatalities on construction worksites. Struck-by incidents are classified as accidents where workers are hit by swinging booms, falling objects (such as bricks from a scaffold), or flying objects (such as particles flying off an object being drilled or ground by a power tool). Caught-between accidents are often fatal occurrences when a worker is unwittingly caught in the gears of machinery; pinned between a vehicle and a wall, or even caught by the clothing or hair on a moving part and pulled into danger. This interactive online course provides information to assist the learner in the identification, avoidance, and control of these hazards in the workplace. While workers may need additional training based on OSHA standards and the specific hazards of their jobs, RedVector's Worksite Safety courses can help inject entry-level workers with critical knowledge on a variety of OSHA-regulated safety and health topics. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1.5	Fundamental
<b>Worksite Safety 05: OSHA Personal Protective Equipment</b>	Hazards in your workplace can be sharp edges, falling objects, flying sparks, chemicals, noise, or many other potentially dangerous situations. OSHA requires all employers to protect their employees from workplace hazards, and when they can't control a hazard at its source, they need to provide workers with accoutrements such as hard hats, gloves, respirators, goggles, safety shoes, and other gear to minimize the likelihood of a mishap. This course covers many common forms of PPE and how to choose it, wear it and care for it. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 06: OSHA Scaffolds</b>	An estimated 2.3 million construction workers, or 65 percent of the construction industry, work on scaffolds frequently. In 1996, when OSHA issued the revised Scaffold Standard for construction, the agency estimated that by protecting these millions of workers from scaffold falls, 4,500 injuries and 50 deaths from scaffold-related accidents would be prevented every year. This course will familiarize you with the facts you need to know to be in compliance with OSHA 1926.451, Subpart L, and keep yourself safe during scaffold work. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 07: OSHA Cranes &amp; Other Hoists</b>	Moving large, heavy loads is critical to the manufacturing and construction industries, but unfortunately, cranes, derricks, hoists, and other lifting devices pose significant safety issues for both their operators and for workers in proximity to them. The rules are complex and often out of date; here, we give OSHA-Subpart N-recommended, ANSI-based tips for safe usage and cover cranes, derricks, hoists, elevators and conveyors. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 08: OSHA Power Tools and Excavations</b>	It might seem silly to think of non-powered hand tools as hazardous, but anyone who's ever hit a finger with the full force of a hammer blow or staple-gunned their hand might beg to differ. Power tools are relatively safe when used properly and well maintained, but an electric shock resulting from a defective or modified device can be deadly. This course will teach you the basics for keeping yourself and your coworkers out of harms way when using tools. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 09: OSHA Materials Storage</b>	The handling and storage of materials used in the construction trade involves diverse operations such as hoisting heavy steel bars with a crane, driving a truck loaded with concrete blocks, manually carrying bags, and stacking drums, lumber or loose bricks. When any of these things are done the wrong way, serious injuries and extensive costs can result. Avoid pitfalls by reading about OSHA's rules in this course. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental
<b>Worksite Safety 10: OSHA Demolition</b>	Demolition is one of the most spectacular - and dangerous - undertakings in the construction industry. A tremendous number of safety precautions are taken and meticulous planning that goes into each such undertaking. This course will familiarize you with some of the basics of safe demolition practices and the attendant OSHA standard. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers. Workers must receive additional training, when required by OSHA standards, on the specific hazards of their job. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	1	Fundamental

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<b>Worksite Safety 11: OSHA Hazards in Communication</b>	There are already more than 650,000 hazardous chemical products in circulation around any number of work-places in the U.S., and hundreds more are introduced every year. More than 30 million workers may be exposed to a chemical hazard or to multiple chemical hazards. If you haven't yet been poisoned, remember: There's still time! Make sure it doesn't happen to you by familiarizing yourself with the HCS - OSHA's Hazard Communication Standard, which is discussed in this course. Also covered in this course is ear-drum-damaging occupational noise, and what OSHA requires employers and employees to do to monitor the levels and minimize exposure. We'll also look at precautions for dealing with one especially dangerous toxic substance that is widely found in the construction industry: Silica. Please note: This course is not a part of the OSHA 10 Hour Construction Program.	0.5	Fundamental
<b>Writing in Plain Language</b>	Write emails and documents that are read, understood, and acted on. We are overwhelmed with information today—in both our personal and business lives. Sometimes it's better to get straight to the point, in a way that doesn't waste your reader's time yet doesn't compromise your professionalism either. This course teaches you how to use plain language to address your reader's needs. What do they really need to know? What do you want them to do? We'll teach you how to think about your reader's purpose and to write for them so they get the message and your writing does its job.	1.25	Fundamental
<b>WSI - Groundskeeping Safety</b>	After a frightening incident, expert workplace investigators are called to crack the case. In the midst of the story, viewers will learn about the hazards of exposure to the various machinery and elements of outdoor work environments. In this unique video, emphasis is placed on working in the elements and how to recognize, prevent and handle heat stress and a variety of other outdoor situations. This landscaping safety video is designed to prevent complacency from entering into your landscaping training.	0.25	Fundamental

## Instructional Design

Vector Solutions' dedicated team of instructional designers work to create engaging, focused training that emphasizes the use of real-world video, interactive learning techniques and comprehensive tracking to ensure active employee participation and retention.

### Courses Include:

- Real-world situations
- Interactive approach
- Comprehensive evaluations and progress tracking

### Highlights Include:

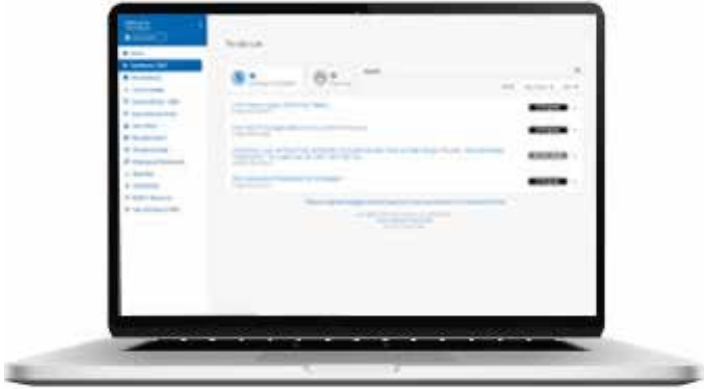
- Course introduction
- High-resolution 3D models and studio-quality motion graphics
- Stated learning objectives
- Learning Aids - Including a main menu with a course outline and glossary of terms
- Interactive Course Modules – In-depth content, using any combination of demonstrative examples, integrated video, review activities, practice questions and rolling audio transcription
- Tests/Exams - To validate learning and the level of achieved skill knowledge after training



## LEARNING MANAGEMENT SYSTEM

### Assess, Develop, and Manage Learning and Talent

We'll put you on a path to improve and retain talent and increase performance with powerful LMS tools and features. Start by assessing knowledge and skills. Then develop skills with targeted, engaging



training. Finally, manage and report on that training with flexibility and ease.

#### Assess

- Self Assessments
- Knowledge Assessments
- Badging
- Task Verification

#### Develop

- Custom Credential Creation
- Custom Course Builder
- Social Collaboration Forums
- Multilingual Interface

#### Manage/Report

- Credential Management
- Tracking & Reporting on Learning Goals
- Schedule & Manage Instructor-Led Training
- Create User Groups and Attributes

## INNOVATIVE TECHNOLOGY SOLUTIONS

### Knowledge Assessment

Vector Solutions' competency assessments identify the skills gaps between your employees' existing knowledge, skills, and abilities versus their development goals. Use this tool to identify employee skills deficiencies and automatically prescribe necessary training.

### Safety Data Management

Our cloud-based incident management system offers enhanced safety management capabilities for recording, tracking, and trending safety data and workplace incidents.



### Risk Reporting, Emergency Communication, & Health Assessment Mobile Platform

Use our leading mobile platform for safety and security risk reporting, emergency communications, and COVID-19 health assessments and mitigation. Whether it's physical safety and security risks, mental health, sexual harassment and assault, or COVID-19 health risks, our LiveSafe mobile platform provides all of the tools necessary to keep your people informed and safe.





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