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EngineeringAdvantage™ Educational Modules

These modules are part of your benefits for being a member of the EngineeringAdvantage™ program.

Module Name	Description	Fire Life/Safety	Security	Building Automation and HVAC
Networking Fire Alarm Systems (FAS101)	Focused on the topic of fire systems networking using the highest end system available. Topics include; design challenges, codes & standards requirements, media overview, FireFinder XLS communication details, strategies for a successful design and performance criteria. ★▲	●	◔	○
Fire Detection Technologies (FAS102)	Covers fire detection technologies application guidelines for successful design. Topics include; fire principles, current detection technologies, code updates-NFPA 72-2010 chapter 17, construction challenges, application solutions, and future detection technologies. ★▲	●	◔	○
Smoke Control Overview (FAS103)	Module covers smoke control design considerations and fire alarm system integration. Topics include; definitions, concepts, system equipment, codes and standards, building application, (design considerations), certification, maintenance, and periodic evaluation. ★▲	●	◔	◐
Mass Notification (FAS104)	Covers concepts for successful planning and implementation of mass notification systems (AKA Emergency Communication Systems). Topics include; drivers, customers / stakeholders, codes and standards, planning phase, technologies, challenges and application solutions. ★▲	●	●	○
Clean Agent Extinguishing Overview (FAS105)	Covers business continuity and the environment as it pertains to clean agent extinguishing systems. Topics include; history, definitions, fire suppression principles, fire suppression, development timeline, codes, and standards, business continuity, clean agents and special, hazard systems, design and construction issues, and applications. ★▲	●	○	○
NFPA 72 2010 Fire Alarm & Signaling Code Updates (FAS106)	This module focuses on the significant code updates made in NFPA 72 2010. Topics include; fundamentals, circuit & pathways, inspection and testing, initiating devices, notification appliances, emergency control functions, protected premises, emergency communication, systems (ECS), details on ECS, review of MNS challenges, supervisory station, public reporting, and household. ★▲	●	◔	○
Intelligibility in ECS (FAS107)	Covers concepts for successful planning and implementation of intelligibility. Topics include; definitions and goals, intelligibility overview, sound characteristics, codes and standards, planning phase, technologies, application solutions, verification methods and available resources. ★▲	●	●	○
Fire Detection Industry Innovations (FAS108)	Covers emerging technologies in fire detection and signaling systems. Topics include; fire alarm industry overview, drivers for change, early warning smoke detection, improved photoelectric smoke detection methods, co detection, video smoke detection, gas detection improvements, monitored fire extinguisher technology and the value of smoke detection. ★▲	●	◔	○
Building Information Modeling (BIM) (FAS109)	This module covers introduction and potential impact to system design workflows from BIM. Topics include; terms and definitions, typical project design cycle, introduction to building, information modeling, workflow impact, BIM implementation, BIM software options, sources of equipment models and information on resources. ★▲	●	●	●
ECS Integration with Building Systems (FAS110)	This module provides a greater focus on intelligent response solutions. Topics include; Terms and Definitions, ECS Overview, Drivers, Risk Assessment per NFPA 72, Circuit Integrity Requirements, Common Interface Options, Applications and Benefits. ▲	◔	●	◔
Fire and Security Alarm Communication Methods (FAS111)	Cover an overview of various signaling options for event reporting. Topics include; Terms and definitions, history and background, NFPA 72 communication requirements, older technological solutions, DACTS and DACRS, IP communicators, wireless mesh technology overview, network planning and connectivity, and future developments. ★▲	●	●	◔
IP Video System Design Considerations (SEC112)	Overview of various options available for a custom IP video solution. Topics include; terms and definitions, system performance goals, target selection, lenses & cameras, topology planning & connectivity, transmission & storage, video analysis, integration, and intelligent response. ★▲	◔	●	○
Emergency Responder Radio Coverage Systems (FAS113)	Focused on codes, standards and equipment related to radio coverage systems. Topics include; understanding the benefits vs. hard wired systems, codes & standards requirements, components and methods to increase coverage, ensuring reliable operation of the radio system, supervision and power, commissioning, and system application solutions. ★▲	●	◔	○
Fire Alarm Interface of Smoke Dampers (FAS114)	This module is focused on codes, standards and equipment related to the integration of fire alarm systems with smoke dampers. Topics include; understanding fire & smoke dampers components, basic damper concepts & control methods, damper activation, codes & standards as well as inspection & testing of smoke dampers ★▲	●	○	◐
Total Building Solutions (TBS115)	Customers today are faced with interfacing various building systems in order to effectively operate their facility. Traditionally these systems are designed through separate specifications and different disciplines with little consideration to integration. This presentation explores the various systems and the value of integrating them together in order to provide an improved workflow in managing them all together. By linking various systems together the total building solution becomes greater than the sum of its parts. ★▲	◔	◔	●
NFPA 72 2013 Fire Alarm & Signaling Code Updates (FAS116)	This module focuses on the significant code updates made in NFPA 72 2013. Topics include; fundamentals, circuit & pathways, inspection and testing, initiating devices, notification appliances, emergency control functions, protected premises, emergency communication, systems (ECS), details on ECS, review of MNS challenges, supervisory station, public reporting, and household. ★▲	●	◔	○
Life Safety Interfaces (FAS117)	Module covers issues and design considerations of fire alarm system integration with other building systems for emergency control functions. Module includes components related to interfacing various life safety systems and control devices. Topics include; relays, intelligent devices, elevator recall, GUIs, HVAC interfacing and foreign systems. ★▲	●	◐	◔
Surge Suppression Application (FAS118)	Power surges cause premature system failure in electronic systems. In order to properly protect systems from this risk it is important to understand the sources of power surges and then properly size the protection for the specific application. We will cover how surge suppression works and how to apply it effectively. ★▲	●	●	●
Occupant Evacuation Operation (FAS119)	Evacuation methods are changing and the model codes have been updated to permit the elevator to be used for evacuation. This presentation will discuss Occupant Evacuation Operation, and technical and physical requirements. A review of the code requirements and sequences is covered along with potential challenges. ★▲	●	◔	◔
Fire Alarm Requirements per Occupancy Classification IBC and IFC (FAS120)	Covers definitions, chapter overviews, occupancy classifications, general documentation requirements and fire alarm systems requirements per occupancy classification. ★▲	●	◔	○

★ CPDs and possible CEUs, ▲ AIA/CES approved 1.0 LU, ● AIA/CES approved 1.0 LU/HSW (Conversion to CEU or PDH varies by state)

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☐	Fire Life Safety - Applying NFPA 25 and NFPA 72 Standards (FAS121)	The content will help the audience gain a better understanding of the NFPA 25 and NFPA 72 fire life safety inspection, testing, and maintenance (ITM) requirements. Contents include why ITM is needed, what standards should be used, when services need to be performed, who can perform services, what documentation is required and how to develop a service plan to help ensure compliance. ⋆▲	●	○	○
☐	NFPA 25 Chapter 14 Sprinkler 5 yr testing requirements (FAS122)	In order for fire sprinkler systems to function properly, they must continue to meet their original water design flow and pressure. Corrosion and obstructions interfere with the proper operation of the system, and over time, the structural integrity of piping can degrade due to corrosion. Because of these issues, the NFPA requires periodic internal piping assessments. This presentation, will cover some of the key topics of NFPA 25, Chapter 14: Internal Piping Condition & Obstruction Investigation. ⋆▲	●	○	○
☐	NFPA 72 - 2016 Edition Overview (FAS123)	Provides a grand tour of key elements and changes included in this essential body of code. Contents include: Global changes, Key Definitions, Documentation changes, Changes to fundamentals, Circuits and Pathways, Inspection, Testing, Maintenance, Initiating Devices, Notification Appliances, Emergency Control Function Interfaces, Protected Premises Fire Alarm Systems, Emergency Communications Systems, Supervising Station Alarm Systems Single- and Multiple-Station Alarms and Household Fire Alarm Systems. ⋆▲	●	○	○
☐	Area of Refuge and Rescue Assistance Systems (FAS124)	High rise buildings are not adequately equipped to allow safe and expeditious evacuation in all cases. For people with mobility challenges stairways are not a safe option. For this reason, areas on a floor are designated as an area of refuge in the event of a fire condition. Systems are required for communication to provide a way to signal for help when needed. This presentation reviews the requirements and systems. ⋆▲	●	○	○
☐	Data Center Smoke Detection Methods (FAS125)	Critical infrastructure facilities like a data center create extreme challenges for typical smoke detection. Due to their high air changes and often unique airflow and aisle cooling distribution challenges special smoke detection methods are explained that can insure a reliable and responsive system for this application. The presentation covers the codes that impact system design and offers some best practices that can improve reliability and efficiently provide a compliant system that will operate effectively for years to come. ⋆▲	●	○	○
☐	BAS Basics Presentation	A good starting education for new engineers. The content includes such materials as what is a point, what is the network architecture, and what is open vs. closed control loops. ●	◔	◔	●
☐	Valve and Actuator Basics Presentation	The content includes such materials as... types of valves and there functions, importance of pressure drop across a control valve, and how to spec the right valve for the application. ▲	○	○	●
☐	Smart Consumption Presentation	The purpose of this presentation is to educate the market on how Smart Consumption within a facility is evolving with Smart Grid and Demand Response programs. ●	○	○	●
☐	Open Protocols for BAS Control	The purpose of this presentation is to educate the market on how Open Protocols compare and tips for specifying them. ▲	○	○	●
☐	Chilled Beam and Radiant Systems Controls	The content educates the market about controls for chilled beams and radiant panel systems. It will explain the fundamentals of the control components and provide sample sequences of operations. ▲	○	○	●
☐	Demand Controlled Ventilation Basics	The content educates the market about standards around ventilation control and energy efficiency. It applies ASHRAE guidelines to sample sequences of operations. ●	○	○	●
☐	Green Lab Solutions	This course will provide education for consulting engineers and other technical professionals on the basic requirements and effects of environmental controls in laboratories. It will identify the codes and standards for occupant safety in labs. It will then compare energy usage in labs and non-lab applications and provide suggestions for reducing energy consumption in labs while maintaining safety and compliance. ●	◔	◔	●
☐	Control Strategies Affected by Changes in ASHRAE 90.1-2013	The content educates the market about how changes within ASHRAE 90.1-2013 are driving changes to typical controls designs. It links the ASHRAE standard to codes and presents how designs of Building Automation Systems may be affected. It includes recommendations and best practices for improving control sequences. ●	○	○	●
☐	Specifying Variable Frequency Drives for HVAC Applications	VFD technology has evolved over time and recent advancements and code updates have had an impact on the use of VFDs in HVAC applications. This presentation will explore the various components that make up an "HVAC Drive", how they work, applications, and facilitate a discussion on best practices for specifying VFDs. ●	○	○	●
☐	BAS Role in Commissioning	This content includes education on the Commissioning process inboth new and existing buildings, utilizing the BAS. ●	○	○	●
☐	Total Room Automation for BAS	This content provides fundamental education on the concept of centralizing temperature, lighting and shading controls for Building Automation Systems. ●	○	○	●
☐	Cyber Security for BAS	This course will provide fundamental education on the challenges and solutions associated with Cyber Security in Building Automation Systems in commercial buildings. ▲	○	◐	●
☐	Successful Integration for Building Automation Systems	It will include discussions on the fundamental challenges and solutions of Building Automation Systems Integration in commercial buildings. ▲	○	○	●
☐	IT for Building Automation Systems	The content is useful for Consultants and Contractors when talking with IT professionals about using their network infrastructure for BAS. Typical questions are posed and suggestions are given to promote cooperation between IT professionals and vendors. ▲	○	○	●
☐	Hydronic Flow Optimization	This course reviews how proven technologies such as PICV valves and VFDs can maximize the performance of hydronic systems. ●	○	○	●
☐	Data Center Thermal Optimization from Tower to Rack	The course will discuss a retro-commissioning style approach to total data center optimization. ●	○	○	●

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