



COURSE OVERVIEW IE0229 NFPA 72, Fire Alarm and Signaling Code

Course Title

NFPA 72, Fire Alarm and Signaling Code

Course Date/Venue

Session 1: April 13-17, 2026/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: October 25-29, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE



Course Reference

IE0229



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of fire detection system in accordance with NFPA 72 standard. It covers the circuits and pathways; monitoring integrity and circuit performance of installation conductors and other signaling channels; the proper inspection, testing and maintenance; the requirements for smoke and heat detectors; the main components of alarm and detection system; operating heat detector, smoke detector and combined detector; the emergency logic and control function interfaces; and the protected premises alarm and signaling systems.



During this interactive course, participants will learn the system calculations, system periodic test and fire alarm system repair and maintenance; the emergency communications systems; the supervising station alarm systems; the public emergency alarm reporting systems; the proper management and maintenance, communications methods and alarm processing equipment; and the single- and multiple-station alarms and household signaling systems.





Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on fire detection system in accordance with NFPA 72 standard
- Discuss circuits and pathways and monitor integrity and circuit performance of installation conductors and other signaling channels
- Carryout proper inspection, testing and maintenance as well as identify the requirements for smoke and heat detectors and the main components of alarm and detection system
- Operate heat detector, smoke detector and combined detector and discuss emergency logic and control function interfaces
- Recognize protected premises alarm and signaling systems covering system features, system performance and integrity and system requirements
- Apply system calculations, system periodic test and fire alarm system repair and maintenance
- Determine emergency communications systems comprising of in-building fire emergency voice/alarm communications systems (EVACS), in-building mass notification systems, wide-area mass notification systems and distributed recipient mass notification systems (DRMNS), etc
- Recognize supervising station alarm systems that include central station service alarm systems, proprietary supervising station alarm systems, remote supervising station alarm systems, auxiliary systems and communications methods for supervising station alarm systems
- Explain public emergency alarm reporting systems and apply proper management and maintenance, communications methods and alarm processing equipment
- Identify single- and multiple-station alarms and household signaling systems

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

Who Should Attend

This course provides an overview of all significant aspects and considerations of fire detection system in accordance with NFPA 72 standard for instrumentation engineers, HSE inspectors, firefighting equipment inspectors, firemen, fire technicians and other technical staff who are involved in the design, maintenance or troubleshooting of fire detection systems. Further, the course is also suitable for regulatory bodies and NFPA officers.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.



Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Dr. Ahmed El-Sayed, PhD, MSc, BSc, is a **Senior Electrical & Instrumentation Engineer** with over **30 years** of extensive experience in the **Oil, Gas, Power, Petroleum, Petrochemical** and **Water & Utilities**. He specializes in **Fire Fighting System Instrumentations, Fire Protection System, Fire & Gas Detection & Alarm System, Instrumentation Protection Devices Maintenance & Testing, Protection Devices Troubleshooting, Water Meter Calibration, Liquid & Gas Flowmetering & Meter Calibration, Testing & Calibration of Energy Meters, DCS & ESD System Architecture, Distributed Control System, DCS & SCADA, Distributed Control System (DCS) Selection & Troubleshooting, Advanced DCS Yokogawa, Yokogawa CENTUM VP DCS, Modern Distributed Control System (DCS) & Process Instrumentation, Cyber Security of Industrial System, DCS System (Honeywell), DCS Experion System, DCS Siemens Teleperm XP, Relay Coordination Using ETAP Software, Power System Study on ETAP, ETAP-Power System Analysis, Flow Measurement Foundation, Hydrocarbon Measurement & Sampling, Gas Dosiers Preparation, Gas/Liquid Fuel Measurement, Instrumentation Measurement & Control System, Flow Measurement, Pressure Measurement, Level & Temperature Measurement, Measurement Devices & Control System, Instrumentation & Control Systems, Control System Orientation, Uninterruptible Power Supply (UPS) Battery Charger, Industrial UPS Systems Construction & Operation, Test Lead-Acid & Ni-cad Battery Systems, Hazards & Safe Work Practices, Transformer Operational Principles, Selection & Troubleshooting; HV & LV Transformers, Control Valves & Actuators, Electrical Safety, Protection Relay Application, Maintenance & Testing, NEC (National Electrical Code), NESC (National Electrical Safety Code), Electrical Safety, Electrical Hazards Assessment, Electrical Equipment, Personal Protective Equipment, Lock-Out & Tag-Out (LOTO), Confined Workspaces, Alerting Techniques, Electrical Transient Analysis Program (ETAP), Power Quality, Power Network, Power Distribution, Distribution Systems, Power Systems Control, Power Systems Security, Power Electronics, Electrical Substations, UPS & Battery System, Earthing & Grounding, Load Forecasting, Power Generation, Protective Systems, Electrical Generators, Power & Distribution Transformers, Electrical Motors, Switchgears, Transformers, AC & DC Drives, Variable Speed Drives & Generators, Generator Protection, GE Gas Turbines, PLC, SCADA, DCS, Process Control, Control Systems & Data Communications, Instrumentation, Automation, Valve Tuning, SIS, SIL, ESD, Alarm Management Systems, Energy Management System, Engine Management System, Bearing & Rotating Machine, Fieldbus Systems and Fiber Optics Technology. He is currently the **Systems Control Manager** of **Siemens** where he is in-charge of Security & Control of Power **Transmission Distribution & High Voltage** Systems and he further takes part in the Load Records Evaluation & Transmission Services Pricing.**

During his career life, Dr. Ahmed has been actively involved in different Power System Activities including Roles in Power System Planning, Analysis, Engineering, **HV Substation Design**, Electrical Service Pricing, Evaluations & Tariffs, Project Management, Teaching and Consulting. His vast industrial experience was honed greatly when he joined many International and National Companies such as **Siemens, Electricity Authority** and **ACETO** industries as the **Instrumentation & Electrical Service Project Manager, Instrumentation & Control Engineer, Fire Protection Engineer, Energy Management Engineer, Department Head, Assistant Professor, Instrumentation & Control Instructor, Project Coordinator, Project Assistant and Managing Board Member** where he focused more on dealing with Technology Transfer, System Integration Process and Improving Localization. He was further greatly involved in manufacturing some of **Power System** and **Control & Instrumentation Components** such as Series of Digital Protection **Relays, MV VFD, PLC** and **SCADA** System with intelligent features.

Dr. Ahmed is well-versed in different electrical and instrumentation fields like **ETAP**, Load Management Concepts, **PLC** Programming, Installation, Operation and Troubleshooting, **AC Drives** Theory, Application and Troubleshooting, Industrial Power Systems Analysis, AC & DC **Motors**, Electric Motor **Protection, DCS SCADA, Control** and Maintenance Techniques, Industrial Intelligent Control System, **Power Quality** Standards, Power Generators and Voltage Regulators, Circuit Breaker and Switchgear Application and Testing Techniques, **Transformer** and **Switchgear** Application, Grounding for Industrial and Commercial Assets, Power Quality and **Harmonics, Protective Relays** (O/C Protection, Line Differential, Bus Bar Protection and **Breaker Failure Relay**) and Project Management Basics (PMB).

Dr. Ahmed has **PhD, Master's & Bachelor's** degree in **Electrical Engineering** from the **University of Wisconsin Madison, USA** and **Ain Shams University**, respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/ Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, an active member of IEEE and ISA as well as numerous technical and scientific papers published internationally in the areas of Power Quality, Superconductive Magnetic Energy Storage, SMES role in Power Systems, Power System **Blackout** Analysis, and Intelligent Load Shedding Techniques for preventing Power System Blackouts, HV **Substation Automation** and Power System Stability.



Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to NFPA 72 National Fire Alarm & Signaling Code Definitions • Documentation • Fundamentals • Cybersecurity
0930 – 0945	Break
0945 – 1100	Circuits & Pathways Pathway Class Designations • Pathway Survivability • Shared Pathway Designations • Monitoring Integrity and Circuit Performance of Installation Conductors and Other Signaling Channels
1100 - 1230	Inspection, Testing & Maintenance Inspection • Testing • Maintenance • Records
1230 – 1245	Break
1245 - 1345	Initiating Devices Performance-Based Design • General Requirements • Requirements for Smoke and Heat Detectors • Main Components of Alarm & Detection System • Heat-Sensing Fire Detectors • Heat Detector Operation • Heat Detector Spacing • Smoke-Sensing Fire Detectors • Smoke Detector Operation • Smoke Detector Spacing • Radiant Energy-Sensing Fire Detectors • Combined Detector
1345 – 1420	Initiating Devices(cont'd) Combination, Multi-Criteria, and Multi-Sensor Detectors • Gas Detection • Gas Detector • Other Fire Detectors • Carbon Monoxide Detectors • Sprinkler Waterflow Alarm-Initiating Devices • Detection of Operation of Other Automatic Extinguishing Systems • Device & System Compatibility • Manually Actuated Alarm-Initiating Devices • Fire Extinguisher Electronic Monitoring Device • Supervisory Signal-Initiating Devices
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One



Day 2

0730 – 0930	Notification Appliances Audible Characteristics • Visual Characteristics – Public Mode • Visual Characteristics – Private Mode • Supplementary Visual Signaling Method • Textual Audible Appliances • Textual and Graphical Visual Appliances • Tactile Appliances
0930 – 0945	Break
0945 – 1100	Emergency Logic & Control Function Interfaces Elevator Phase I Emergency Recall Operation • Elevator Power Shutdown • Fire Service Access Elevators. • Occupant Evacuation Elevators (OEE) • Heating, Ventilating and Air-Conditioning (HVAC) Systems • High Volume Low Speed (HVLS) Fans • Door and Shutter Release • Electrically Locked Doors • Exit Marking Audible Notification Systems
1100 – 1230	Protected Premises Alarm & Signaling Systems System Features • System Performance and Integrity • System Integrity & Supervision • Performance of Initiating Device Circuits (IDCs) • Performance of Signaling Line Circuits (SLCs) • Performance of Notification Appliance Circuits (NACs) • System Requirements • System Calculations • System Periodic Test • In-Building Emergency Voice/Alarm Communications
1230 – 1245	Break
1245 - 1420	Protected Premises Alarm & Signaling Systems (cont'd) Fire Alarm Systems Using Tone • Types of Fire Alarm Systems • Fire Alarm System Layout (Workshop) • Fire Alarm System Repair & Maintenance • Fire Alarm System Testing (Practical) • Fire Suppression Systems • Suppression System Actuation • Off-Premises Signals
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Protected Premises Alarm & Signaling Systems (cont'd) Guard's Tour Supervisory Service • Suppressed (Exception Reporting) Signal System • Protected Premises Emergency Control Functions • Special Requirements for Low-Power Radio (Wireless) Systems
0930 – 0945	Break
0945 – 1100	Emergency Communications Systems (ECS) In-Building Fire Emergency Voice/Alarm Communications Systems (EVACS) • In-Building Mass Notification Systems • Wide-Area Mass Notification Systems • Distributed Recipient Mass Notification Systems (DRMNS) • Two-Way, In-Building Wired Emergency Services Communications Systems
1100 – 1230	Emergency Communications Systems (ECS) (cont'd) Two-Way Radio Communications Enhancement Systems • Two-Way Emergency Communications Systems for Rescue Assistance • Information, Command, and Control •
1230 – 1245	Break



1245 - 1420	Emergency Communications Systems (ECS) (cont'd) <i>Performance-Based Design of Mass Notification Systems • Documentation for Emergency Communications Systems</i>
1420 - 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	<i>Lunch & End of Day Three</i>

Day 4

0730 - 0930	Supervising Station Alarm Systems <i>Central Station Service Alarm Systems • Proprietary Supervising Station Alarm Systems • Remote Supervising Station Alarm Systems</i>
0930 - 0945	<i>Break</i>
0945 - 1100	Supervising Station Alarm Systems (cont'd) <i>Auxiliary Systems • Communications Methods for Supervising Station Alarm Systems</i>
1100 - 1230	Public Emergency Alarm Reporting Systems <i>Management and Maintenance • Communications Methods • Alarm Processing Equipment</i>
1230 - 1245	<i>Break</i>
1245 - 1420	Public Emergency Alarm Reporting Systems (cont'd) <i>Alarm Boxes • Public Cable Plant • Emergency Communications Systems (ECS)</i>
1420 - 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 - 0930	Single- and Multiple-Station Alarms & Household Signaling Systems <i>Basic Requirements • Remote Annunciation • Notification • Assumptions</i>
0930 - 0945	<i>Break</i>
0945 - 1100	Single- and Multiple-Station Alarms & Household Signaling Systems (cont'd) <i>Carbon Monoxide Detection • Detection and Notification • Power Sources • Power Supplies</i>
1100 - 1230	Single- and Multiple-Station Alarms & Household Signaling Systems (cont'd) <i>Equipment Performance • Installation • Optional Functions</i>
1230 - 1245	<i>Break</i>
1245 - 1345	Single- and Multiple-Station Alarms & Household Signaling Systems (cont'd) <i>Inspection, Testing, and Maintenance • Markings and Instructions</i>
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>



Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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