

COURSE OVERVIEW IE0367
Fire Control System

Course Title

Fire Control System

Course Date/Venue

Session 1: January 20-24, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: August 17-21, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

IE0367

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.



This course is designed to provide a comprehensive overview of the Fire Control System. It covers the basics, types and importance of fire and gas systems in industrial safety; the different types of detectors like smoke, heat, gas and their operational principles; the system components and layout; the control panels, sensors, alarms and emergency shutdown systems; the relevant national and international standards (NFPA, OSHA, etc.) for fire and gas systems; the routine maintenance tasks, schedules and record-keeping; and the control system operation, control logic and response procedures.



During this interactive course, participants will learn the routine maintenance procedures and the step-by-step guide on regular maintenance activities; the frequent operational problems in fire and gas systems; the techniques and best practices for calibrating different types of detectors; the procedures for conducting regular system tests and inspections; the importance of maintaining accurate records in compliance with safety regulations; the preventive maintenance plan and the techniques to handle complex issues and system malfunctions; the software/firmware updates to control systems and ensuring uninterrupted power supply and maintaining backup batteries; the sensor sensitivity and environmental challenges; the emergency situations involving fire and gas leak; and the strategies to calibrate detectors and operate control panels.

Course Objectives

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

- Apply and gain an in-depth knowledge on fire control system
- Discuss the basics, types and importance of fire and gas systems in industrial safety
- Explore different types of detectors like smoke, heat, gas and their operational principles
- Explain the system components and layout covering the control panels, sensors, alarms, and emergency shutdown systems
- Discuss relevant national and international standards (NFPA, OSHA, etc.) for fire and gas systems
- Carryout routine maintenance tasks, schedules and record-keeping
- Evaluate the control system operation, control logic and response procedures
- Apply routine maintenance procedures including step-by-step guide on regular maintenance activities for various system components
- Identify and solve frequent operational problems in fire and gas systems
- Employ techniques and best practices for calibrating different types of detectors
- Implement the procedures for conducting regular system tests and inspections
- Recognize the importance of maintaining accurate records and ensure compliance with safety regulations
- Develop and implement a preventive maintenance plan as well as apply the techniques to handle complex issues and system malfunctions
- Manage and apply software/firmware updates to control systems and ensure uninterrupted power supply and maintain backup batteries
- Adjust sensor sensitivity and address environmental challenges
- Prepare and respond emergency situations involving fire and gas leak
- Demonstrate strategies to calibrate detectors and operate control panels

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 control system for instrumentation and control technicians, control room operators, maintenance engineers, safety engineers and managers, process engineers, HSE (health, safety, and environment) personnel, emergency response team members, facility managers, technical and maintenance supervisors and those who are involved in the maintenance and operation of fire and gas control systems.

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 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 **35 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.**

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.

Accommodation

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

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 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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction & Safety Briefing: Overview of Course Objectives & Safety Practices
0930 – 0945	<i>Break</i>
0945 – 1100	Fundamentals of Fire & Gas Systems: Understanding the Basics, Types of Systems & Their Importance in Industrial Safety
1100 – 1230	Fire & Gas Detection Technologies: Exploration of Different Types of Detectors (Smoke, Heat, Gas) & Their Operational Principles
1230 – 1245	<i>Break</i>
1245 - 1420	System Components & Layout: The Control Panels, Sensors, Alarms & Emergency Shutdown Systems
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0930	Standards & Regulations: Discussion on Relevant National & International Standards (NFPA, OSHA, etc.) for Fire & Gas Systems
0930 – 0945	<i>Break</i>
0945 – 1030	Basic Maintenance Principles: Introduction to Routine Maintenance Tasks, Schedules & Record-Keeping
1030 – 1130	Control System Operation: Detailed Understanding of System Operation, Control Logic & Response Procedures

1130 - 1230	Routine Maintenance Procedures: Step-by-Step Guide on Regular Maintenance Activities for Various System Components
1230 - 1245	Break
1245 - 1420	Troubleshooting Common Issues: Identifying & Solving Frequent Operational Problems in Fire & Gas Systems
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 - 0930	Calibration of Detectors: Techniques & Best Practices for Calibrating Different Types of Detectors
0930 - 0945	Break
0945 - 1030	System Testing & Inspection: Procedures for Conducting Regular System Tests & Inspections
1030 - 1130	Documentation & Compliance: Importance of Maintaining Accurate Records & Ensuring Compliance with Safety Regulations
1130 - 1230	Preventive Maintenance Strategies: Developing & Implementing a Preventive Maintenance Plan
1230 - 1245	Break
1245 - 1420	Advanced Troubleshooting Techniques: Handling Complex Issues & System Malfunctions
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 - 0930	Software & Firmware Updates: Managing & Applying Software/Firmware Updates to Control Systems
0930 - 0945	Break
0945 - 1030	Battery Maintenance & Power Supply Issues: Ensuring Uninterrupted Power Supply & Maintaining Backup Batteries
1030 - 1130	Sensor Sensitivity & Environmental Factors: Adjusting sensor Sensitivity & Addressing Environmental Challenges
1130 - 1230	Emergency Response Planning: Preparing for & Responding to Emergency Situations Involving Fire & Gas Leaks
1230 - 1245	Break
1245 - 1420	Practical Session: Detector Calibration: Hands-on Practice in Calibrating Various Types of Detectors
1420 - 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 - 0930	Practical Session: System Troubleshooting: Real-world Simulation of Troubleshooting Exercises
0930 - 0945	Break
0945 - 1030	Control Panel Operation Drill: Interactive Session on Operating & Understanding Control Panel Indications
1030 - 1130	Inspection & Testing Exercise: Conducting a Thorough Inspection & Testing of a Mock System

1130 - 1230	Scenario-Based Training: Engaging in Simulated Scenarios to Apply Learned Concepts
1230 - 1245	Break
1245 - 1345	Group Discussion & Feedback: Sharing Experiences & Learning from Peer Review
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 - 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Simulator (Hands-on Practical Sessions)

Practical session will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the simulator “BW Technologies BW-Clip : Single Gas Detector-H2S”.



Course Coordinator

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