

**COURSE OVERVIEW IE0367**  
**Maintain Fire and Gas Control System**

**Course Title**

Maintain Fire and Gas Control System

**Course Reference**

IE0367

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs



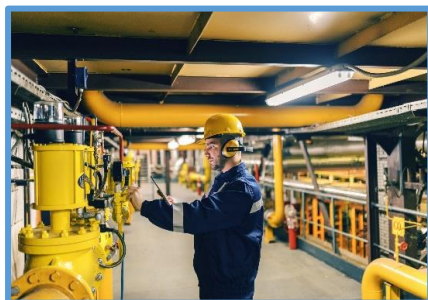
**Course Date/Venue**

Session(s)	Date	Venue
1	April 21-25, 2024	Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar
2	July 14-18, 2024	Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey
3	November 03-07, 2024	The Kooh Al Noor Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE
4	February 03-07, 2025	Hampstead Meeting Room, London Marriott Hotel Regents Park, London, United Kingdom

**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 and Gas 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 and gas control systems maintenance
- 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, course conveniently saved in a **Tablet PC**.

## Who Should Attend

This course provides an overview of all significant aspects and considerations of fire and gas control systems 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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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.

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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.

### 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. Mike Tay, PhD, MSc, BSc, is a Senior Electrical, Instrumentation & Communications Engineer with over 35 years of extensive experience. His expertise widely covers in Protective Devices Troubleshooting, Protective Devices Testing & Maintenance, Uninterruptible Power Supply (UPS) Design, Industrial UPS Systems & Battery Power Supplies Maintenance & Troubleshooting, UPS & Battery System, Battery & Battery Charger & UPS and Measurement Devices, UPS System & Battery Chargers Maintenance & Troubleshooting, UPS & Battery Design, Operation, Maintenance & Troubleshooting, UPS Operation & Alarm Panel Reading, Circuit Breaker, HV Switchgear Operation & Maintenance, HV/LV Equipment, High Voltage Electrical Safety, LV & HV Electrical System, HV Equipments Inspection & Maintenance, LV Distribution Switchgear & Equipment, Protection Relay Maintenance, Application & Testing, System Analysis, Power System Faults, Protection Scheme Components, Current & Voltage Transformers, Power System Neutral Grounding, Feeder Overcurrent Protection, Electrical Protection Systems, Bus Protection, Motor Protection, Starting & Control, Transformer Protection, Generator Protection, Capacitor Protection, Numerical Relays, SCADA Security, ESD System Analysis & Control, Electrical & Instrumentation, Installation & Inspection, Custody Measurement, Loss Control for Petroleum Products, Process Control & Instrumentation, Fiber Optics Access Network Planning, Safety Instrumented System (SIS), Safety Integrity Level (SIL), PLC Design, Power System, Power Supply Design Management, Basic Electronics & Transformers, Diesel Generator, Electric Motors, Electrical Fundamentals, Basic Electricity & Electrical Codes. Further, he is also well-versed in Communications, Telecommunications, Mobile Protocols, 4G LTE, GSM/UMTS, CMDA2000, WIMAX Technology, HSPA+, Alarm Management System, Computer Architecture, Logic & Microprocessor Design, Embedded Systems Design plus Computer Networking with CISCO, Network Communication, Industrial Digital Communication, Designing Telecommunications Distribution System, Electrical Engineering, WiMAX Broadband Wireless System, TT Intranet & ADSL Network, TT Web & Voicemail, Off-site ATM Network, IT Maintenance, Say2000i, IP Phone, National Address & ID Automation, Electricity Distribution Network, Customs Network & Maintenance, LAN & WAN Network, UYAP Network, Network Routing Protocols, Multicast Protocols, Network Management Protocols, Mobile & Wireless Networks and Digital Signal Processing. Currently, he is the Technical Advisor of Izmir Altek.**

During his career life, Dr. Tay worked with various companies such as the **KOC Sistem, Meteksan Sistem, Altek BT, Yasar University, Dokuz Eylul University, METU** and occupied significant positions like the **Aegean Region Manager, Group Leader, Technical Services Manager, Field Engineer, Research Assistant, Instructor, Technical Advisor** and the **Dr. Instructor**.

Dr. Tay has **PhD, Master and Bachelor** degrees in **Electrical & Electronic Engineering** from the **Dokuz Eylul University** and the **Middle East Technical University (METU)** respectively. Further, he is a **Certified Instructor/Trainer, Technical Trainer (Australia), Trainer for Data-Communication System (England & Canada), a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, a **Certified CISCO (CCSP, CCDA, CCNP, CCNA, CCNP) Specialist**, a **Certified CISCO IP Telephony Design Specialist, CISCO Rich Media Communications Specialist, CISCO Security Solutions & Design Specialist** and **Information Systems Security (INFOSEC) Professional**. He has delivered and presented innumerable training courses and workshops worldwide.

### 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

Doha	<b>US\$ 6,000</b> per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	<b>US\$ 6,000</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
London	<b>US\$ 8,800</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), 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 &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction &amp; Safety Briefing:</b> <i>Overview of Course Objectives &amp; Safety Practices</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Fundamentals of Fire &amp; Gas Systems:</b> <i>Understanding the Basics, Types of Systems &amp; Their Importance in Industrial Safety</i>
1100 – 1230	<b>Fire &amp; Gas Detection Technologies:</b> <i>Exploration of Different Types of Detectors (Smoke, Heat, Gas) &amp; Their Operational Principles</i>
1230 – 1245	<i>Break</i>



1245 - 1420	<b>System Components &amp; Layout:</b> The Control Panels, Sensors, Alarms & Emergency Shutdown Systems
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2**

0730 - 0930	<b>Standards &amp; Regulations:</b> Discussion on Relevant National & International Standards (NFPA, OSHA, etc.) for Fire & Gas Systems
0930 - 0945	Break
0945 - 1030	<b>Basic Maintenance Principles:</b> Introduction to Routine Maintenance Tasks, Schedules & Record-Keeping
1030 - 1130	<b>Control System Operation:</b> Detailed Understanding of System Operation, Control Logic & Response Procedures
1130 - 1230	<b>Routine Maintenance Procedures:</b> Step-by-Step Guide on Regular Maintenance Activities for Various System Components
1230 - 1245	Break
1245 - 1420	<b>Troubleshooting Common Issues:</b> Identifying & Solving Frequent Operational Problems in Fire & Gas Systems
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

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

**Day 4**

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



**Day 5:**

0730 – 0930	<b>Practical Session: System Troubleshooting: Real-world Simulation of Troubleshooting Exercises</b>
0930 – 0945	Break
0945 – 1030	<b>Control Panel Operation Drill: Interactive Session on Operating &amp; Understanding Control Panel Indications</b>
1030 - 1130	<b>Inspection &amp; Testing Exercise: Conducting a Thorough Inspection &amp; Testing of a Mock System</b>
1130 - 1230	<b>Scenario-Based Training: Engaging in Simulated Scenarios to Apply Learned Concepts</b>
1230 – 1245	Break
1245 – 1345	<b>Group Discussion &amp; Feedback: Sharing Experiences &amp; Learning from Peer Review</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
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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