

SMART FIRE AND GAS DETECTION SYSTEMS FOR MODERN PLANTS

"Enhancing Plant Safety and Efficiency through Advanced Detection Technologies"

Schedule

Date	Venue	Fees (Face-to-Face)
20 - 24 Jul 2026	London, UK	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

This course provides participants with in-depth knowledge of smart fire and gas detection systems, focusing on their critical role in enhancing safety and operational integrity in modern industrial plants. It explores advanced technologies, design considerations, integration techniques, and regulatory standards, ensuring participants can effectively design, operate, and maintain these systems. Through a mix of theory, case studies, and workshops, attendees will learn how to reduce risks, improve early detection, and ensure compliance with international safety requirements.

Objectives

By the end of this course, participants will be able to:

- Understand the principles and technologies behind smart fire and gas detection systems
- Evaluate system design, installation, and integration best practices
- Apply safety standards and regulatory requirements to detection system management
- Troubleshoot and maintain fire and gas detection systems effectively
- Optimize system performance for improved plant safety and efficiency

Why Attend

- Gain expertise in cutting-edge detection technologies
- Learn to minimize fire and gas-related risks in complex industrial environments
- Improve system reliability and reduce false alarms
- Understand global safety standards and compliance requirements
- Develop actionable strategies to enhance plant-wide safety systems

Target Audience

This program is designed for:

- HSE managers and safety officers
- Instrumentation and control engineers
- Plant operations and maintenance managers
- Project engineers and system integrators
- Fire safety and risk management professionals

Individual Benefits

Key competencies that will be developed include:

- Deep understanding of fire and gas detection technologies
- Enhanced skills in system design, assessment, and integration
- Improved ability to troubleshoot and maintain detection systems
- Knowledge of international standards and compliance frameworks
- Strategic thinking for safety system optimization

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Enhanced plant safety and risk reduction
- Improved reliability and performance of detection systems
- Compliance with global safety regulations and standards
- Reduced downtime and operational disruptions
- Stronger organizational safety culture and incident preparedness

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Technical Briefings - Overview of smart detection systems and safety requirements
- Case Studies - Real-world applications and performance analysis of detection systems
- Hands-on Workshops - Designing, assessing, and optimizing detection systems
- Peer Discussions - Sharing experiences and best practices across industries
- Tools and Templates - Checklists for system audits, assessments, and maintenance

MAWA EVENTS

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Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Introduction to Fire and Gas Detection Systems

- Module 1: Overview of Fire and Gas Hazards in Industrial Plants
- Understanding common fire and gas hazards
- Risk analysis for plant safety
- Importance of early detection systems
- Module 2: Principles and Technologies of Detection Systems
- Types of fire and gas detectors
- Sensor technologies and selection criteria
- System configurations and architectures
- Module 3: International Standards and Compliance Requirements
- Key international codes and standards (e.g., NFPA, IEC)
- Regulatory compliance and best practices
- Certification and approval processes

Day 2: System Design and Integration

- Module 4: Best Practices in System Design and Layout
- Zoning and detector placement strategies
- System scalability and redundancy
- Environmental and operational considerations
- Module 5: Integration with Plant Control Systems and Automation
- Linking detection systems with DCS and SCADA
- Alarm management and communication protocols
- Ensuring interoperability and cybersecurity
- Module 6: Workshop – Designing a Fire and Gas Detection System
- Practical design exercise
- Applying design principles to real-world scenarios
- Group review and feedback

Day 3: System Performance and Reliability

- Module 7: Performance Metrics and Reliability Assessment
- Key performance indicators (KPIs)
- Reliability-centered maintenance (RCM)
- Failure mode and effect analysis (FMEA)
- Module 8: Reducing False Alarms and Ensuring System Accuracy
- Common causes of false alarms
- Calibration and tuning techniques
- Testing protocols and verification
- Module 9: Workshop – Evaluating System Performance
- Analyzing performance data
- Identifying improvement areas
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Reporting and documenting findings

Day 4: Maintenance, Testing, and Troubleshooting

- Module 10: Routine Maintenance and Inspection Procedures
- Preventive maintenance schedules
- Inspection checklists and documentation
- Spare parts management
- Module 11: Testing Protocols and Compliance Checks
- Functional and acceptance testing
- Periodic testing and calibration
- Ensuring regulatory compliance
- Module 12: Workshop – Troubleshooting Common System Failures
- Hands-on troubleshooting exercises
- Diagnosing sensor and system faults
- Developing corrective action plans

Day 5: Strategic Planning and Continuous Improvement

- Module 13: Developing a Fire and Gas Safety Strategy
- Aligning detection systems with organizational safety goals
- Risk-based planning and prioritization
- Building a safety culture
- Module 14: Continuous Improvement in Safety System Management
- Monitoring and feedback mechanisms
- Benchmarking and best practice sharing
- Leveraging new technologies and innovations
- Module 15: Final Workshop – Action Plan for Plant Safety Optimization
- Creating an actionable safety improvement plan
- Group presentations and peer feedback
- Course wrap-up and key takeaways

Certification

Participants will receive a Certificate of Completion in Smart Fire and Gas Detection Systems for Modern Plants, confirming their advanced knowledge and practical skills in designing, managing, and optimizing fire and gas detection systems.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

<p>In-House / Customized Training</p> <p>Interested in running this course for your team?</p> <p>Please contact us:</p>	<p>TEL:</p> <p>+601116373203</p>	<p>EMAIL:</p> <p>info@mawaevents.net</p>
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