



*Training Course:  
Integrating Gas Detection into Safety  
Management Systems*

*22 September - 3 October 2025  
London (UK)  
Landmark Office Space - Portman Street*

## Training Course: Integrating Gas Detection into Safety Management Systems

Training Course code: HE236123 From: 22 September - 3 October 2025 Venue: London (UK) - Landmark Office Space - Portman Street Training Course Fees: 9800 € Euro

### Introduction

In high-risk industries such as oil and gas, petrochemicals, utilities, and manufacturing, gas detection systems are essential components of safety infrastructure. However, to achieve maximum effectiveness, these systems must be integrated into a broader safety management system SMS that enables proactive risk mitigation, regulatory compliance, and coordinated emergency response.

This training program, designed by Global Horizon Training Center, provides an in-depth exploration of how to align gas detection strategies with modern safety management systems. Participants will gain the technical expertise to evaluate, integrate, and optimize gas detection technologies while enhancing the overall safety performance of their organizations. The course bridges the gap between equipment capabilities and SMS frameworks by focusing on system integration, risk-based planning, compliance, and continuous improvement.

### Objectives

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

- Understand the relationship between gas detection and occupational safety management
- Select appropriate detection technologies based on risk profiles and operational needs
- Design and implement integrated detection and response systems
- Align gas detection systems with ISO 45001 and other SMS frameworks
- Establish protocols for continuous monitoring, reporting, and response
- Train teams to interpret readings and respond appropriately
- Ensure compliance with local and international safety regulations
- Integrate gas monitoring into emergency preparedness and hazard control planning

### Course Methodology

- Expert-led lectures and case study reviews
- Demonstrations of detection systems and integration platforms
- Hands-on workshops for risk mapping and planning
- Scenario-based simulations for emergency response

- Group discussions and technical problem-solving
- Real-world examples from industry best practices

## Organizational Impact

Implementing this training program will result in:

- Enhanced integration of gas detection into overall safety systems
- Reduced exposure to gas-related incidents and downtime
- Stronger compliance with occupational health and safety laws
- Increased internal capability to manage and monitor hazardous gases
- Improved coordination between operations, safety, and maintenance teams
- A proactive, risk-based culture of safety and continuous improvement

## Target Audience

This course is designed for professionals working in:

- Health, Safety, and Environment HSE
- Process safety and risk management
- Operations and maintenance departments
- Facility and asset management
- Emergency preparedness and response
- Engineering and project management
- Industrial hygiene and occupational safety

## Course Outline

Day 1: Introduction to Gas Detection and Safety Systems

- The role of gas detection in industrial safety
- Hazardous gas types and health effects
- Safety Management Systems SMS overview

- International standards ISO 45001, NFPA, OSHA

#### Day 2: Detection Technology Fundamentals

- Detection principles: combustible, toxic, and oxygen-deficient gases
- Sensor types: IR, catalytic, electrochemical, PID, ultrasonic
- System components: detectors, transmitters, control panels

#### Day 3: Gas Detection System Design and Configuration

- Sensor placement strategies and coverage analysis
- Designing multi-layered detection systems
- Portable vs. fixed detectors and area monitoring
- Zoning and classification of hazardous areas

#### Day 4: Integration with Safety Management Systems

- Mapping detection outputs to SMS controls
- Aligning detection functions with safety objectives and KPIs
- Interfacing detection systems with alarm, shutdown, and evacuation protocols
- Digital integration: SCADA, DCS, and control rooms

#### Day 5: Risk-Based Gas Monitoring Planning

- Gas hazard identification and qualitative risk assessments
- Quantitative risk analysis for gas release scenarios
- Developing gas monitoring plans aligned with risk profiles
- Hierarchy of controls in gas hazard mitigation

#### Day 6: Emergency Response and Incident Management

- Integrating gas detection with emergency plans
- Alarm levels and escalation procedures
- Evacuation planning and shelter-in-place strategies

- Case studies: Gas leak incident analysis

#### Day 7: Compliance and Regulatory Integration

- Legal obligations for gas detection systems
- Auditing and documentation requirements
- Alignment with OSHA, ATEX, IECEx, and local authorities
- Preparing for inspections and audits

#### Day 8: Data Analysis, Reporting, and Communication

- Reading and interpreting gas detector data
- Real-time monitoring and remote alerts
- Automated reporting and integration with SMS dashboards
- Communicating alerts across departments and stakeholders

#### Day 9: Maintenance, Calibration, and Continuous Improvement

- Preventive maintenance strategies for detection systems
- Calibration procedures and documentation
- Troubleshooting and fault diagnostics
- Continuous improvement and performance reviews

#### Day 10: Workshop and Final Evaluation

- Group exercise: Designing an integrated gas detection and SMS framework
- Simulation: Responding to a multi-gas incident using integrated systems
- Final participant presentations
- Wrap-up discussion, course review, and feedback

## Registration form on the Training Course: Integrating Gas Detection into Safety Management Systems

**Training Course code:** HE236123 **From:** 22 September - 3 October 2025 **Venue:** London (UK) - Landmark Office Space - Portman Street **Training Course Fees:** 9800 £ Euro

Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

### Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Company Information

Company Name: .....  
Address: .....  
City / Country: .....

### Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
- ☐ Please invoice my company

### Easy Ways To Register

Telephone:  
+201095004484 to  
provisionally reserve your  
place.

Fax your completed  
registration  
form to: +20233379764

E-mail to us :  
info@gh4t.com  
or training@gh4t.com

Complete & return the  
booking form with cheque  
to: Global Horizon  
3 Oudai street, Aldouki,  
Giza, Giza Governorate,  
Egypt.