MERCURY

Integrated Diploma Program in Occupational Health and Safety (OHC)

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Introduction

Integrated Diploma Program in Occupational Health and Safety OHC is an advanced course that strengthens safety performance in complex, high-risk work environments, with a primary focus on the oil and gas and construction sectors. Global industrial catastrophes such as Deepwater Horizon, Piper Alpha, Buncefield, and the BP Texas Refinery explosion highlight how systemic weaknesses in safety management, process integrity, and leadership decision-making can escalate into large-scale disasters. These events confirm that operational excellence and productivity gains are not possible without strong occupational health and safety frameworks.

This course delivers an integrated and strategic understanding of occupational health and safety by combining safety management systems, process safety management, advanced risk assessment methodologies, and human factors engineering. It goes beyond compliance by addressing how leadership behavior, organizational culture, and safety governance influence operational risk. Participants develop the capability to anticipate hazards, evaluate complex risk scenarios, and implement layered control strategies aligned with international standards and best practices. They will enable organizations to move from reactive safety approaches to proactive and resilient safety performance.

Targeted Groups

- Senior technical professionals in high-risk industries.
- Engineering, project, and process specialists.
- Construction and operations supervisors.
- Team leaders are responsible for frontline execution.
- Safety, HSE, and risk management professionals.

Course Objectives

At the end of this Occupational Health and Safety OHC course, participants will be able to:

- Analyze complex incidents and determine systemic and organizational root causes.
- Identify, assess, and prioritize operational risks across industrial and construction environments.
- Apply advanced qualitative and quantitative risk assessment techniques used in oil and gas operations.
- Design and implement integrated risk management and control strategies.
- Interpret and apply international occupational health and safety regulations and standards.
- Evaluate hazard control effectiveness using the hierarchy of controls.
- Assess scaffolding, work-at-height, and construction-related risks critically.
- Conduct structured incident investigations and translate findings into preventive actions.
- Analyze hazards associated with hydrocarbon extraction, processing, storage, and transportation.
- Apply safety assurance tools, including safety cases, permits, and performance indicators.
- Strengthen safety-critical decision-making under operational constraints.
- Support continuous improvement and regulatory compliance within safety management systems.

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Targeted Competencies

Upon completion of this Occupational Health and Safety OHC training, participants will be able to:

- Demonstrate advanced safety leadership and governance capabilities.
- Influence workforce behavior through behavioral safety principles.
- Apply proactive incident-prevention and emergency-management strategies.
- Use safety coaching techniques to improve individual and team performance.
- Strengthen organizational safety culture and accountability.
- Conduct advanced risk assessments and hazard analyses.
- Communicate safety requirements with clarity and authority.
- Evaluate safety performance metrics and trends.
- Support audits, inspections, and regulatory reporting effectively.

Studying Scenarios

In this Occupational Health and Safety OHC training, participants develop skills through the following scenarios:

- Investigating major industrial accidents to identify latent system failures.
- Assessing unsafe acts and conditions in live oil and gas operations.
- Performing construction site risk assessments under time and resource constraints.
- Applying HAZOP and FMEA techniques to complex process systems.
- Managing permit-to-work scenarios involving high-risk activities.
- Evaluating emergency response readiness during fire and explosion incidents.
- Reviewing scaffolding failures to identify design, inspection, and supervision gaps.

Course Content

Unit 1: Health, Safety, and Environmental Management in Context

- Evolution of occupational health and safety management systems.
- Learning from major industrial disasters and near-miss reporting.
- Identification of operational hazards in the oil and gas industry.
- Risk management frameworks in high-risk industries.
- Development of safe systems of work.
- Hydrocarbon process safety fundamentals.
- Principles and structure of Process Safety Management PSM.
- Roles, responsibilities, and accountability within HSE governance.

Unit 2: The Foundations of Process Safety

- Process safety versus personal safety.
- Learning from historical accidents and process failures.
- International good practice standards EU and USA.
- Permit-to-work systems and control of non-routine work.
- Shift handover and operational communication protocols.
- Human factors, fatigue, and organizational discipline.
- Barrier management and performance monitoring.

Unit 3: Hazards and Controls

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- Physical hazards: noise, vibration, and radiation.
- Electrical hazards and lockout/tagout systems.
- Machinery, tools, and work equipment safety.
- Manual handling and ergonomic risk control.
- Environmental and workplace hazards.
- Work at height and fall prevention strategies.
- Transport and mobile equipment hazards.
- Application of the hierarchy of controls.

Unit 4: Hydrocarbon Process Safety

- Mechanics of failure and degradation mechanisms.
- Identification and management of safety-critical elements.
- Containment systems and loss prevention.
- Safe operation, inspection, and maintenance practices.
- Start-up, shutdown, and abnormal operation risks.
- Fire, explosion, and toxic release hazards.
- Furnace, boiler, and pressure system safety.

Unit 5: Risk Assessment Techniques

- Risk assessment principles and frameworks.
- Hazard and Operability Studies HAZOP.
- Failure Modes and Effects Analysis FMEA.
- Bow-tie analysis and barrier effectiveness.
- Safety Integrity Level SIL determination.
- Hazardous area classification and ignition control.
- Risk acceptance criteria and decision-making.

Unit 6: Fire Protection and Emergency Response

- Fire and explosion phenomena in the oil and gas industry.
- Types and classifications of fires and explosions.
- Fire and explosion risk assessment methodologies.
- Passive and active fire protection systems.
- Emergency response planning and drills.
- Crisis management and incident command systems.
- Post-incident recovery and business continuity.

Unit 7: Construction Safety Management

- Construction safety legislation and standards.
- Risk assessment for construction activities.
- Formwork, excavation, and temporary works safety.
- Construction safety management systems.
- Contractor and subcontractor safety coordination.
- Monitoring and enforcement of site safety rules.

Unit 8: Safety and Health in Construction

- Safety planning throughout the project lifecycle.
- Site-specific hazard identification and control.

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- Safe use of construction plant and equipment.
- Electrical safety and temporary services.
- Health risks, occupational diseases, and welfare.
- Safety performance monitoring and reporting.

Unit 9: Health & Safety for Scaffolding

- Legal and regulatory requirements for scaffolding.
- Risk assessment and method statements for scaffolds.
- Scaffold design, erection, and dismantling controls.
- Inspection, tagging, and load management.
- Fall prevention and access control measures.
- Incident prevention in scaffolding operations.

Unit 10: Safety Advisor Development

- Advanced safety advisor roles and competencies.
- Leadership, communication, and influence skills.
- Facilitating behavioral and cultural change.
- Regulatory compliance and enforcement processes.
- Risk reporting and safety documentation systems.
- Continuous improvement and professional development.

Final Insights & Key Takeaways

This course develops advanced technical, managerial, and leadership capabilities required to manage occupational health and safety risks in complex, high-risk environments. By integrating process safety, advanced risk management, and behavioral leadership, participants will drive sustainable safety excellence and organizational resilience.