

# Process Safety Engineer

## HAZOP, Process Safety Strategies & Compliance **HSE006**

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### Course Description

Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years. Incidents continue to occur in various industries that use highly hazardous chemicals which may be toxic, reactive, flammable, or explosive, or may exhibit a combination of these properties.

Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled. This, in turn, creates the possibility of disaster.

Hazardous chemical releases continue to pose a significant threat to employees and provide impetus, internationally and nationally, for authorities to develop or consider developing legislation and regulations to eliminate or minimize the potential for such events.

### Course Objectives

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

- Understand the importance of Process Safety Management (PSM) and compliance with regulations
- Identify key PSM requirements and compliance standards
- Develop a process safety culture and competency within the organization
- Implement effective training and performance assurance programs for employees
- Manage change and ensure operational readiness
- Maintain operational discipline and emergency management procedures
- Conduct incident investigations, metrics, auditing, and management reviews for continuous improvement
- Manage contractors and involve the workforce in process safety efforts
- Understand Layers of Protection Analysis (LOPA) and Safety Integrity Level (SIL) concepts
- Implement process knowledge management, hazard identification, risk analysis, and operating procedures
- Maintain safe work practices and asset integrity and reliability
- Learn from case studies and lessons learned from major Process Safety accidents.

## Who Should Attend

- Engineers and technical professionals involved in the design, operation, and maintenance of processes involving highly hazardous chemicals
- Process safety managers and coordinators
- HSE professionals
- Operations and maintenance supervisors and managers
- Regulatory compliance professionals
- Risk management professionals
- Plant managers and supervisors
- Contractors and consultants who work with highly hazardous chemicals
- Anyone responsible for managing or overseeing processes involving highly hazardous chemicals or ensuring regulatory compliance.

## Course Duration

5 Working Days

## Course Outlines

### 1. Introduction to Process Safety Management and Compliance

- Importance of process safety management.
- Key requirements of process safety management.
- Process safety culture and competency
- Compliance with standards
- Authentic leadership and commitment to process safety
- Training and Performance Assurance

### 2. Managing Change, Operational Readiness, and Emergency Management

- Management of Change
- Operational Readiness and PSSR
- Operational Discipline
- Emergency Management

### 3. Incident Investigation, Auditing, and Continuous Improvement

- Incident Investigation
- Measurement and Metrics
- Auditing

- Management Review and Continuous Improvement
- Contractor Management

#### **4. Process Safety Culture, Competency, and Workforce Involvement**

- Process Safety Culture
- Compliance with Standards
- Process Safety Competency
- Workforce Involvement
- Overview of LOPA & SIL

#### **5. Hazard Identification, Risk Analysis, and Operating Procedures**

- Process Knowledge Management
- Hazard Identification and Risk Analysis
- Operating Procedures
- Safe Work Practices
- Asset Integrity and Reliability
- Case studies
- Main Process safety accidents as case studies for learned lessons in the last 30 years.
- Exercises

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