

# Advanced Safety in Process Equipment Design and Operation

*Barcelona (Spain)*

*20 - 24 January 2025*

UK Training

# PARTNER



# Advanced Safety in Process Equipment Design and Operation

Code: CS28 From: 20 - 24 January 2025 City: Barcelona (Spain) Fees: 4700 Pound

## Introduction

Safety in process equipment design and operation is a top priority in industries where even minor mishaps can lead to catastrophic consequences. This comprehensive course is tailored for technical professionals seeking advanced knowledge and skills to enhance safety. It includes an in-depth exploration of Advanced Process Hazard and Operability Analysis HAZOP techniques, which are essential for identifying and mitigating potential hazards.

## Objectives

- Hazard Identification and Assessment
- Risk Mitigation and Prevention
- Personnel Safety and Well-being
- Environmental Protection
- Compliance and Regulatory Adherence

## Course Outline

### Day 1

#### Fundamentals of Process Safety Management

- Understand the principles of process safety management PSM.
- Explore advanced methods for documenting and tracking action items within PSM.
- Learn about key regulatory requirements and industry standards.
- Explore the role of process safety culture in organizations.
- Identify the elements of process safety information.
- Learn to prioritize deviations based on risk assessment, ensuring efficient mitigation efforts.
- Develop strategies for optimizing safeguards and control measures.

### Day 2

#### Risk Assessment and Management

- Master various risk assessment methods, including HAZOP, FMEA, and LOPA.
- Learn how to create and structure HAZOP teams for effective hazard identification.
- Gain insights into HAZOP terminologies and process deviation categories.
- Learn how to identify and prioritize process hazards.
- Develop skills to conduct quantitative risk assessments.

- Explore the integration of risk assessments into process design and operation.
- Begin the journey of mastering advanced HAZOP analysis techniques.

### Day 3

#### Process Equipment Design for Safety

- Understand the principles of inherently safer design.
- Learn how to select and implement safety instrumented systems SIS.
- Explore the importance of relief systems and emergency shutdowns.
- Gain insights into fire protection and explosion prevention in equipment design.
- Explore the use of risk matrices and risk ranking techniques in conjunction with analysis.

### Day 4

#### Safe Operation and Maintenance

- Develop a comprehensive understanding of process equipment operation and maintenance.
- Learn how to establish safe work practices and procedures.
- Explore the significance of process hazard analysis PHA and safety audits.
- Understand the role of human factors in process safety.
- Identify opportunities for cross-disciplinary collaboration in process safety.
- Address compliance and reporting requirements related to HAZOP and PSM integration.
- Advanced-Data Analysis and Quantitative Risk Assessment.

### Day 5

#### Emergency Response and Continuous Improvement

- Learn how to develop and implement emergency response plans.
- Gain a comprehensive understanding of the process, including its principles and purpose.
- Understand the importance of incident investigation and lessons learned.
- Explore methods for continuous improvement in process safety.
- Develop strategies for fostering a culture of safety within organizations.
- Case Studies and Advanced HAZOP Applications.



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