COURSE BROCHURE

Process Safety Management

An advanced two-week program in process safety for facilities handling hazardous materials, covering system elements, hazard analysis, HAZOP, LOPA and management of change.

Code	HT-HSE-107
Category	Health, Safety & Environment
Duration	2 weeks
Level	Advanced

Introduction

A facility can go years without a lost-time injury while the potential for a major accident quietly builds, because personal safety indicators do not reveal the erosion of the barriers that keep hazardous materials contained.

Objectives

- Distinguish occupational safety from process safety and identify sources of major accidents
- Assess the adequacy of process safety information and find its gaps
- Lead a HAZOP study and judge the quality of its outputs
- Apply LOPA to decide whether independent protection layers are sufficient
- Design management of change, mechanical integrity and pre-startup review elements and monitor how they perform

Who should attend

- Process safety engineers and process engineers
- Operations and production unit managers at petrochemical and chemical facilities
- HAZOP and hazard analysis team leaders
- HSE managers at major hazard facilities

Skills you will develop

- Process hazard analysis
- HAZOP facilitation
- Layer of protection analysis
- Change and barrier management

Learning Outcomes

- Complete a HAZOP worksheet for one node of a model process unit
- Perform a LOPA for a hazard scenario and quantify the gap between current and tolerable risk
- Review a technical change request and specify the assessments needed before approval
- Produce a process safety gap assessment and an improvement roadmap

Course Outline

Day 1: Process Safety and Major Accidents

- Personal safety versus process safety
- Major accident scenarios: loss of containment, fire, explosion and toxic release
- The elements of a process safety management system and how they connect

Day 2: Process Safety Information

- Hazardous material properties and reactivity
- Piping and instrumentation diagrams and safe operating limits
- Equipment data, relief systems and design basis

Day 3: Process Hazard Analysis

- HAZID, what-if, checklist and failure modes and effects analysis
- Choosing a method by project phase and process complexity
- Forming the analysis team and periodic revalidation

Day 4: The HAZOP Study

- Nodes, guidewords and deviations
- Causes, consequences, safeguards and recommendations
- Facilitating and recording sessions and avoiding common mistakes

Day 5: Operating Procedures and Operator Competence

- Normal, abnormal, emergency, startup and shutdown procedures
- Safe operating limits and the consequences of exceeding them
- Training operators and verifying their competence

Day 6: Layer of Protection Analysis

- Initiating events and their frequencies, and independent protection layers and their criteria
- Risk tolerance criteria set by the organization
- Calculating mitigated scenario frequency and identifying the protection gap

Day 7: Safety Instrumented Systems and Barrier Management

- Safety instrumented functions, safety integrity levels and the IEC 61511 lifecycle at awareness level
- Bow-tie diagrams to show preventive and mitigating barriers
- Alarm management and the control of safeguard bypasses

Day 8: Mechanical Integrity and Management of Change

- Safety-critical equipment, inspection and test programs and handling deficiencies
- Technical, organizational and temporary changes
- The change request path from review and approval to closure

Day 9: Pre-Startup Review, Emergencies and Contractors

- Pre-startup safety review for new and modified equipment
- Managing contractor performance in process units
- Emergency planning for major accidents and investigating process safety events

Day 10: Audit, Indicators and Implementation

- Auditing the process safety system and management review
- Leading and lagging process safety indicators and tiering events by severity
- Applied project: a process safety gap assessment for a process unit and a roadmap to close the gaps

Training methodology

Live HAZOP sessions on the piping and instrumentation diagrams of a model process unit
LOPA calculation exercises checked against a reference solution
Analysis of well-known major industrial accidents from public reports, mapped to system elements
Review of change requests and pre-startup review records to find what is missing

Certification

Participants receive a Harbor Training Center certificate of attendance on completing the course.

Upcoming dates

City	Dates	Language	Fee
Istanbul	19 – 30 April 2027	AR	EUR 8,800
Dubai	26 April 2027 – 7 May 2027	EN	EUR 8,300
London	3 – 14 May 2027	EN	EUR 9,300
Amsterdam	10 – 21 May 2027	AR	EUR 10,900
Online	17 – 28 May 2027	EN	EUR 5,000
Istanbul	18 – 29 October 2027	EN	EUR 8,800
Dubai	25 October 2027 – 5 November 2027	AR	EUR 8,300
London	1 – 12 November 2027	AR	EUR 9,300

Fees are per participant.

Contact us

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To register and for details, scan the code or visit:

https://harbor4training.com/en/courses/process-safety-management