

Course No. 1524

Process Safety Management (PSM) Training Course

**PROCESS SAFETY & LOSS PREVENTION
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS**

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Process Safety Management (PSM) Training Course is a comprehensive professional program designed to strengthen the ability of organizations and their personnel to prevent major process-related incidents and manage hazards associated with high-risk operations. The course provides a structured understanding of how process safety management systems can be established, implemented, monitored, and continuously improved across the operational lifecycle.

Process Safety Management is particularly important for organizations operating complex processes involving hazardous substances, high pressures, high temperatures, flammable materials, toxic chemicals, or energy-intensive systems. The course examines the relationship between process design, operating procedures, equipment integrity, human performance, emergency preparedness, risk assessment, and organizational controls, helping participants develop a more integrated approach to process safety.

The program focuses on practical application rather than treating process safety as a standalone compliance function. Participants explore how process safety information, hazard analysis, operating procedures, management of change, mechanical integrity, training, incident investigation, contractor management, and emergency planning work together to control major accident risks and support reliable operations.

The Process Safety Management (PSM) Training Course is designed for organizations seeking to strengthen operational resilience, improve risk-based decision-making, and establish consistent controls throughout the process lifecycle. It provides executives, managers, engineers, safety professionals, operations personnel, and technical specialists with a common framework for understanding process safety responsibilities and translating risk information into effective operational actions.

Objectives

- Analyze the fundamental principles of Process Safety Management and their relevance to high-hazard industrial operations during the course.
- Develop a structured understanding of the key elements required to establish and maintain an effective process safety management system.

- Evaluate process safety information to determine whether critical technical and operational information is adequate for risk control.
- Apply systematic approaches to process hazard identification and risk assessment using realistic industrial scenarios.
- Assess the effectiveness of operating procedures, training, maintenance practices, and safety systems in controlling process hazards.
- Strengthen the application of Management of Change principles when modifying processes, equipment, technology, materials, or procedures.
- Evaluate mechanical integrity requirements for safety-critical equipment and identify opportunities for improved reliability and risk control.
- Develop practical approaches for investigating process safety incidents, identifying underlying causes, and preventing recurrence.
- Improve contractor management, permit-to-work practices, and operational controls associated with high-risk activities.
- Design effective approaches for monitoring process safety performance through appropriate indicators, audits, reviews, and corrective actions.
- Implement practical improvement strategies that integrate process safety into daily operations, maintenance, engineering, and management decision-making.

Who Should Attend

The Process Safety Management (PSM) Training Course is designed for professionals responsible for process safety, operational risk, engineering, maintenance, reliability, inspection, and industrial safety. It is particularly relevant to process safety engineers, HSE professionals, process engineers, chemical engineers, mechanical engineers, electrical and instrumentation engineers, operations engineers, maintenance professionals, reliability specialists, and technical personnel working in high-hazard facilities.

The course is also suitable for HSE managers, process safety managers, operations managers, maintenance managers, engineering managers, facility managers, project managers, production supervisors, inspection managers, emergency response coordinators, and professionals responsible for safety-critical systems. It is valuable for personnel involved in process design, commissioning, startup, operation, shutdown, maintenance, modification, and decommissioning activities.

Executives, senior managers, risk owners, asset managers, project decision makers, and leaders responsible for operational excellence can also benefit from the program. The course provides them with a practical understanding of how process safety risks affect business continuity, asset protection, regulatory responsibilities, workforce safety, operational reliability, and long-term organizational performance.

Learning Outcomes

- Explain the core principles and objectives of Process Safety Management within high-hazard industrial environments.
- Identify the major components of an effective process safety management system and their relationships.
- Evaluate process safety information and determine how it supports safe engineering and operational decisions.
- Conduct structured process hazard identification and contribute effectively to multidisciplinary risk assessment activities.
- Assess the adequacy of operating procedures and identify gaps that could contribute to process safety incidents.
- Apply Management of Change principles to control risks arising from modifications to processes, equipment, materials, technology, and procedures.
- Evaluate mechanical integrity programs for safety-critical equipment and identify potential weaknesses in inspection, testing, maintenance, and reliability controls.
- Analyze process safety incidents to identify immediate, underlying, and organizational causes and develop meaningful corrective actions.
- Assess contractor management and high-risk work controls, including permit-to-work and operational authorization processes.
- Develop approaches for integrating emergency preparedness and response with process safety risk scenarios.
- Select appropriate process safety performance indicators and use them to support monitoring and continuous improvement.
- Develop a practical process safety improvement action plan applicable to the participant's organizational environment.

Course Outline

DAY 01

Process Safety Management Fundamentals and Risk-Based Operations

- Principles, objectives, and evolution of Process Safety Management
- Difference between process safety, occupational safety, and personal safety
- Major accident hazards and loss-of-containment scenarios
- Process safety lifecycle and organizational responsibilities
- Process safety culture, leadership commitment, and accountability
- Identification of critical process safety activities and safety-critical elements
- Relationship between process safety management and operational excellence

PRACTICAL APPLICATION

Mapping major process safety risks and management responsibilities within a representative industrial facility

DAY 02

Process Safety Information, Hazard Analysis, and Operating Controls

- Development and management of process safety information
- Process design information, process flow diagrams, and technical documentation
- Chemical hazard information and hazardous material management
- Process Hazard Analysis methodologies and multidisciplinary risk assessment
- Integration of HAZOP, What-If Analysis, Checklist Analysis, and related techniques
- Operating procedures for startup, normal operation, temporary operation, shutdown, and emergency conditions
- Safe work practices, permit-to-work systems, and operational controls

DAY 02 — CONTINUED

PRACTICAL APPLICATION

Review of process safety information and identification of gaps affecting hazard assessment and operational control

DAY 03

Management of Change, Mechanical Integrity, and Asset Reliability

- Principles and objectives of Management of Change
- Identification and assessment of risks associated with process and equipment modifications
- Temporary changes, organizational changes, technology changes, and procedural changes
- Pre-startup safety review and verification of readiness
- Mechanical integrity principles for safety-critical equipment
- Inspection, testing, preventive maintenance, and reliability management
- Safety instrumented systems, alarms, shutdown systems, pressure protection, and critical safeguards

PRACTICAL APPLICATION

Evaluate a proposed process modification and develop an appropriate change management and verification process

DAY 04

Incident Investigation, Human Factors, Contractor Management, and Emergency Preparedness

- Process safety incident investigation principles and methodologies
- Identification of immediate, underlying, and systemic causes
- Root cause analysis and development of effective corrective actions
- Learning from near misses, process deviations, and loss-of-containment events
- Human factors and organizational influences on process safety performance
- Contractor selection, qualification, communication, and process safety responsibilities

DAY 04 — CONTINUED

- Emergency planning based on credible process safety scenarios
- Coordination between operations, emergency response teams, contractors, and management

PRACTICAL APPLICATION

Investigation of a representative process safety incident and development of corrective and preventive actions

DAY 05

Process Safety Performance, Auditing, and Continuous Improvement

- Process safety performance measurement and leading and lagging indicators
- Process safety audits, compliance reviews, and management assessments
- Monitoring implementation and closure of corrective actions
- Evaluation of process safety culture and leadership effectiveness
- Integration of PSM with risk management, asset integrity, reliability, and business continuity
- Management review of process safety performance and organizational priorities
- Developing a sustainable process safety improvement framework

PRACTICAL

Practical approaches for embedding process safety into daily management and operational decision-making

FINAL WORKSHOP

Develop a comprehensive Process Safety Management improvement action plan for a representative organizational environment



Register or Request More Information

Course page: <https://quest-training.com/courses/process-safety-management-psm-training-course>

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