Advanced Process Safety Management (PSM) Compliance & Best Practices (OSHA 1910.119 & CCPS)

Course general description:

This advanced course focuses on the critical components of **Process Safety Management (PSM)**, emphasizing compliance with **OSHA 1910.119** and **CCPS** guidelines. It provides an in-depth understanding of PSM regulations and industry best practices, designed to help organizations reduce process risks, protect employees, and prevent accidents. The course also covers the implementation of an effective PSM program and the integration of **hazard analysis, risk management, and operational safety practices** within an organization's culture. Participants will leave with actionable knowledge to lead and manage PSM efforts, ensuring compliance and improving safety performance.

Audience:

This course is intended for professionals working in risk management, process safety, operations, and safety leadership roles, including:

- Process Safety Managers and Engineers
- Health, Safety, and Environmental (HSE) Managers
- Operations Managers
- Risk Managers
- Regulatory Compliance Officers
- Safety Consultants
- Engineers and Supervisors working in high-risk industries (Chemical, Oil & Gas, Pharmaceuticals, Manufacturing)

Course objectives:

By the end of this course, participants will:

- Gain comprehensive knowledge of **OSHA 1910.119** and **CCPS** PSM standards and how they apply to high-risk industries.
- Understand **PSM compliance requirements** and best practices for preventing catastrophic accidents.
- Learn how to develop, implement, and sustain an effective **PSM program** in alignment with regulatory requirements and industry best practices.
- Conduct **hazard analyses** (e.g., HAZOP, What-If, LOPA) and develop **risk management** strategies.
- Build a **PSM culture** within an organization by addressing leadership, communication, and training needs.
- Learn about the **Management of Change (MOC)** process, **incident investigation**, and **emergency planning**.
- Use case studies to understand common **compliance failures** and learn how to address them.
- Develop strategies for **continuous improvement** in PSM compliance and overall safety performance.

Course duration:

5 days

Course location:

Dubai

Course contents:

Day 1: Introduction to PSM Compliance & Regulatory Framework

- Pretest

- **Overview of PSM in OSHA 1910.119 and CCPS**
    - Key principles of **Process Safety Management** (PSM)
    - Regulatory overview: **OSHA 1910.119** and **CCPS Guidelines**
    - Roles and responsibilities of stakeholders in PSM implementation
    - Key definitions: Process Safety, Major Accident Hazards, High-Risk Processes
    - **PRA** (Process Risk Assessment) and its role in PSM
- **Understanding the 14 Elements of PSM (OSHA 1910.119)**
    - **Process Safety Information (PSI)**
    - **Process Hazard Analysis (PHA)** and **Risk Assessment**
    - **Operating Procedures** and **Safe Work Practices**
- **Case Study**: A review of industry PSM incidents and compliance failures

Day 2: Hazard Analysis and Risk Assessment Techniques

- **HAZOP (Hazard and Operability Study)**
    - Key principles of **HAZOP** for hazard identification
    - Structuring a **HAZOP study** and conducting hazard analysis
    - Mitigation measures and designing effective barriers
- **What-If and LOPA (Layer of Protection Analysis)**
    - Applying **What-If** techniques for process safety analysis
    - Understanding the **LOPA framework** for risk assessment
    - Analyzing and assessing the adequacy of **protective layers**
- **Practical Exercise**: Conducting a **HAZOP** session for a sample process

Day 3: Management of Change (MOC), Operating Procedures, and Compliance Audits

- **Management of Change (MOC)**
    - Understanding the **MOC process** in PSM compliance
    - Ensuring the **MOC process** is aligned with OSHA and CCPS standards
    - Integrating **MOC into daily operations** and ensuring safety during changes
    - Documentation and **risk analysis during change**
- **Operating Procedures and Safe Work Practices**
    - Writing and implementing **safe operating procedures**
    - **Procedures for startup, shutdown, and emergency operations**
    - Training and communication on safe work practices
- **PSM Compliance Audits**
    - Performing **PSM audits** to assess compliance with OSHA 1910.119 and CCPS
    - Developing **audit checklists** for different PSM elements
    - **Audit findings** and implementing corrective actions
- **Practical Exercise**: Simulated MOC and PSM audit process

Day 4: Incident Investigation, Emergency Planning, and Response

- **Incident Investigation**
    - Best practices for **investigating PSM-related incidents**
    - Root cause analysis (RCA) and using **Bowtie Analysis** for incident investigation
    - Writing **investigation reports** and implementing corrective actions
    - **CCPS Guidelines** for incident investigation and learning from failures
- **Emergency Planning and Response**
    - Developing and implementing **emergency response plans** for major accidents
    - Coordination with external agencies and first responders

    - **Business continuity** and disaster recovery plans
- **Case Study**: Lessons from **real-life incidents** in PSM

Day 5: Building PSM Culture and Continuous Improvement

- **Building a PSM Culture**
    - Role of **leadership** in fostering a strong PSM culture
    - **Communication strategies** for safety and risk management
    - Engaging the workforce in **PSM ownership** and accountability
    - Role of **training** and awareness in maintaining PSM culture
- **PSM Program Evaluation and Continuous Improvement**
    - Developing **PSM performance indicators** and metrics
    - Continuous improvement tools: **PDCA (Plan-Do-Check-Act)** cycle, **Kaizen** principles
    - Conducting **PSM reviews** and updating systems as per new regulations
    - Long-term sustainability and resilience of **PSM programs**
- **Course Wrap-Up**: Review of Key Takeaways, Q&A, and Final Assessment

Methodology:

- 50% lectures & concepts
- 10% Videos
- 10% Case studies
- 10% Exercises
- 10% Discussions
- 10% Software (if applicable or examples)

Assessment and Certification:

- Knowledge Assessment: Through case study analysis and group exercises.
- **Final Project**: Completion of a PSM audit or hazard analysis for a complex process scenario.
- Certificate: Participants will receive a course completion certificate upon successfully finishing the course, which demonstrating expertise in PSM compliance and best practices.

Course code: (THSE003)