Process Safety Management for High-Hazard Industries Training Course



07 - 11 Dec 2026

Cape town

4600 € (Per Person)

Ref: #HSE8669_263076

Course Introduction / Overview:

The management of highly hazardous chemicals and complex industrial processes requires a disciplined approach to prevent catastrophic events. This comprehensive training course, offered by BIG BEN Training Center, is designed to provide professionals with the in-depth knowledge and practical skills needed to implement and manage an effective Process Safety Management (PSM) program. The program goes beyond reactive safety measures, focusing on a proactive system that addresses the unique risks associated with process industries. Participants will learn how to identify, evaluate, and control hazards related to high-risk processes, ensuring compliance with regulatory requirements and protecting both people and assets. This training is for those who are ready to take on a leadership role in process safety. Drawing on academic and industry standards from leading organizations like the Center for Chemical Process Safety (CCPS), the course is built on a solid foundation of best practices. It also references concepts from books such as "Guidelines for Risk-Based Process Safety" which provides key insights into the principles of effective risk management in the chemical and energy sectors. BIG BEN Training Center is committed to equipping professionals with the advanced skills necessary to build a robust and resilient safety culture.

Target Audience / This training course is suitable for:

- HSE managers and engineers.
- Process engineers and chemists.
- Operations and plant managers.
- Maintenance and reliability engineers.
- Risk assessment professionals.
- Compliance and regulatory officers.
- Anyone involved in the design, operation, or maintenance of high-hazard processes.
- Government inspectors and regulators.

Target Sectors and Industries:

- Oil and gas.
- Chemical and petrochemical.
- Pharmaceuticals.
- Energy and utilities.
- Manufacturing.
- Refining.
- Mining.
- Government agencies and public services.

Target Organizations Departments:

- Health, safety, and environment (HSE) departments.
- Operations and production.
- Engineering.
- Maintenance and reliability.
- Quality assurance.
- Risk management.
- Compliance.

Course Offerings:

By the end of this course, the participants will have able to:

- Conduct a process hazard analysis (PHA).
- Implement a comprehensive PSM program.
- Manage changes to processes and equipment safely.
- Understand and apply safety instrumented systems.
- Develop and audit effective operating procedures.
- Ensure mechanical integrity of equipment.
- Lead and document effective incident investigations.
- Ensure compliance with international PSM regulations.
- Foster a culture of process safety excellence.

Course Methodology:

This training course at BIG BEN Training Center uses a highly practical and immersive methodology to ensure that participants are prepared for the unique challenges of process safety. The program combines clear, detailed lectures with interactive case studies of major process safety incidents from around the world. This allows participants to analyze real-world scenarios and develop problem-solving skills. Group workshops and hands-on exercises focus on conducting a simulated process hazard analysis (PHA) and developing a change management plan. Participants will practice using tools and techniques for risk assessment and safety system design. The instructor provides personalized feedback and guidance throughout the program, helping each participant master the core competencies. By focusing on practical application, BIG BEN Training Center ensures that participants leave with the confidence and skills needed to implement and manage a robust PSM program.

Course Agenda (Course Units):

Unit One: Foundations of Process Safety Management

- Understanding the principles of process safety.
- The 14 elements of a PSM program.
- Comparing PSM to traditional occupational safety.
- Identifying highly hazardous chemicals and processes.
- The history of process safety incidents and lessons learned.
- The business case for PSM.
- Roles and responsibilities in PSM.

Unit Two: Process Hazard Analysis (PHA)

- Methods for conducting a PHA (e.g., HAZOP, What-If).
- Defining process boundaries.
- Identifying hazards and potential consequences.
- Evaluating risks.
- Developing and documenting recommendations.
- The role of human factors in PHA.
- Revalidating PHAs.

Unit Three: Mechanical Integrity and Safe Work Practices

- Developing a mechanical integrity program.
- Maintenance procedures and quality assurance.
- Safe work practices (e.g., lockout/tagout).
- Permit-to-work systems.
- Contractor safety management.
- Hot work permits.
- Safe entry into confined spaces.

Unit Four: Management of Change and Incident Investigation

- Establishing a management of change (MOC) process.
- The impact of change on process safety.
- Developing and implementing an MOC procedure.
- Conducting a thorough incident investigation.
- Root cause analysis for process safety incidents.
- Developing effective corrective actions.
- Learning from a near miss.

Unit Five: PSM Auditing and Continuous Improvement

- Conducting a PSM compliance audit.
- Developing and implementing a PSM audit program.
- Ensuring compliance with regulatory standards.
- Using audit findings to drive improvement.
- Leading a PSM review.
- Emergency planning and response.
- Building a culture of process safety.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can a well-implemented process of safety management be a strategic advantage for a company, reducing long-term financial risk and enhancing its reputation?

What unique qualities does this course offer compared to other courses?

This program stands out by providing a deep, specialized focus on Process Safety Management specifically for high-hazard industries. While many safety courses cover general principles, this training dives into the unique and complex challenges of managing highly hazardous chemicals and processes. The course is built on a framework of proactive, system-based thinking, teaching participants to prevent catastrophic events before they occur. Its unique quality lies in its practical, hands-on approach, using real-world case studies and a simulated process hazard analysis to ensure that the knowledge gained is not just theoretical but immediately applicable. The curriculum also emphasizes the crucial link between technical integrity and a strong safety culture. This makes the program a valuable opportunity for professionals to become true experts in their field, capable of building a safer, more resilient organization.