Advanced Process Safety and HAZOP Leadership Training Course



02 - 06 Nov 2026

Boston

7500 € (Per Person)

Ref: #ACE4620_195736

Course Introduction / Overview:

This intensive training course provides a comprehensive framework for mastering both the technical and leadership dimensions of Process Safety Management (PSM) and Hazard and Operability (HAZOP) studies. In high-hazard industries, preventing catastrophic incidents is not merely a matter of compliance but a fundamental operational imperative. This program moves beyond theoretical knowledge to instill the practical skills required to lead effective risk assessment initiatives and cultivate a robust safety culture. Drawing on principles articulated by process safety pioneers like Trevor Kletz in his seminal work, "What Went Wrong? Case Histories of Process Plant Disasters," the course emphasizes learning from past failures to build resilient systems for the future. Participants will explore the intricate elements of a PSM system, from process hazard analysis to incident investigation, with a special focus on the HAZOP methodology. At BIG BEN Training Center, we believe that effective HAZOP leadership is a blend of technical acumen and sophisticated facilitation skills. Therefore, this course is uniquely designed to empower professionals to not only understand the process but to confidently lead multidisciplinary teams, manage complex discussions, and ensure the thoroughness and integrity of every safety review, ultimately safeguarding people, assets, and the environment.

Target Audience / This training course is suitable for:

- Process Safety Engineers and Managers.
- HSE Managers, Advisors, and Specialists.
- Operations and Plant Managers.
- Chemical and Process Engineers.
- HAZOP Team Leaders and Facilitators.
- Maintenance and Engineering Managers.
- Project Managers and Engineers.
- Instrument and Control Engineers.
- Senior Technicians and Shift Supervisors.
- Regulatory Compliance Officers.

Target Sectors and Industries:

- Oil and Gas Exploration and Production.
- Petrochemical and Refining Industries.
- Chemical Manufacturing and Processing.
- Pharmaceutical and Biotechnology Sectors.
- Power Generation and Utilities.
- Water and Wastewater Treatment Facilities.
- Heavy Manufacturing and Industrial Production.
- Governmental bodies and regulatory agencies.

Target Organizations Departments:

- Health, Safety, and Environment (HSE).
- Operations and Production.
- Engineering and Design.
- Maintenance and Reliability.
- Project Management.
- Quality Assurance and Control.
- Research and Development.
- Risk Management and Compliance.

Course Offerings:

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

- Develop and implement the core elements of a robust Process Safety Management system.
- Lead, plan, and facilitate comprehensive and effective HAZOP studies.
- Apply various Process Hazard Analysis (PHA) techniques to identify and assess risks.
- Master advanced facilitation skills to manage HAZOP team dynamics and discussions.
- Analyze complex engineering drawings and process flow diagrams for risk identification.
- Develop actionable recommendations and track their implementation effectively.
- Investigate incidents using structured root cause analysis methodologies.
- Champion and cultivate a proactive, world-class safety culture within their organization.
- Evaluate and manage changes effectively through a formal Management of Change (MOC) process.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, experiential, and focused on practical application. We reject a passive, lecture-based approach, instead fostering a dynamic learning environment where participants actively engage with the material. The course combines expert-led instruction on core PSM and HAZOP principles with in-depth analysis of real-world case studies, examining both successes and failures in process safety. A significant portion of the training is dedicated to hands-on workshops and syndicate exercises, where participants will work in teams to conduct mock HAZOP studies on realistic process scenarios. This allows for the immediate application of learned techniques in a controlled setting. Role-playing sessions are utilized to develop critical leadership and facilitation skills, preparing participants to handle challenging team dynamics and complex technical debates. Continuous feedback is provided by the instructor and peers, ensuring a deep and lasting understanding of the concepts. This blended approach ensures that participants leave not just with knowledge, but with the confidence and competence to lead process safety initiatives in their own workplaces.

Course Agenda (Course Units):

Unit One: Foundations of Process Safety Management

- Introduction to Process Safety Management (PSM).
- Understanding the difference between process safety and personal safety.
- Key elements of global PSM standards (e.g., OSHA PSM, Seveso III).
- The role of leadership and management commitment in PSM.
- Developing and fostering a positive safety culture.
- The business case for effective process safety.
- Introduction to process safety key performance indicators.

Unit Two: Process Hazard Analysis and Risk Assessment

- Overview of Process Hazard Analysis (PHA) methodologies.
- Techniques such as What-If, Checklist Analysis, and Failure Mode and Effects Analysis (FMEA).
- Principles of risk assessment and the risk matrix.
- Introduction to Layers of Protection Analysis (LOPA).
- Understanding Safety Integrity Levels (SIL).
- The fundamental principles and objectives of the HAZOP study.
- Defining study nodes and design intent.

Unit Three: Mastering the HAZOP Study Methodology

- Pre-study preparation and defining the scope and objectives.
- Selecting the right multidisciplinary HAZOP team.
- Detailed explanation of HAZOP guidewords and parameters.
- Step-by-step process of a HAZOP session.
- Techniques for identifying causes, consequences, and existing safeguards.
- Developing meaningful and actionable recommendations.
- The role of the HAZOP scribe and effective documentation.

Unit Four: Advanced HAZOP Leadership and Facilitation Skills

- The role and responsibilities of the HAZOP leader.
- Techniques for effective meeting facilitation and time management.
- Managing team dynamics and handling difficult participants.
- Ensuring the quality and thoroughness of the HAZOP study.
- Facilitating HAZOP for complex scenarios including human factors.
- Advanced HAZOP for non-routine operations like startup and shutdown.
- Reviewing and validating the final HAZOP report.

Unit Five: PSM Implementation and Continuous Improvement

- Incident investigation and root cause analysis techniques.
- The critical role of Management of Change (MOC).
- Conducting Pre-Startup Safety Reviews (PSSR).
- Developing and managing mechanical integrity programs.
- Emergency planning and response requirements.
- Auditing PSM systems for effectiveness and compliance.
- Strategies for continuous improvement in process safety performance.

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:

Beyond regulatory compliance, how can a leader transform an organization's safety culture from a set of rules into a deeply ingrained value system?

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

This course distinguishes itself by holistically integrating the technical rigor of HAZOP methodology with the critical, often overlooked, art of leadership and facilitation. While many programs focus solely on the procedural steps of a HAZOP study, this training delves into the human factors that determine its ultimate success. We move beyond a simple "checkbox" approach to risk assessment, challenging participants to think critically about managing team dynamics, fostering open communication, and guiding a diverse group of experts toward a consensus on complex safety issues. The curriculum is heavily weighted towards practical application, using immersive case studies of major industrial incidents to provide context and urgency. Unlike purely academic courses, our workshops simulate the pressures and complexities of a real HAZOP session, equipping participants with the confidence to lead, not just participate. The emphasis is on developing facilitators who can ensure the thoroughness and integrity of a study, transforming it from a mandatory exercise into a powerful tool for genuine risk reduction and operational excellence. This dual focus on technical mastery and leadership acumen provides a unique and comprehensive learning experience.