Strategic Implementation of Risk-Based Process Safety

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Geneva (Switzerland)



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Why This Course

Process safety is a critical component of operational excellence in high-risk industries. Traditional compliance-based safety systems are no longer sufficient to manage complex industrial risks. Organizations must adopt a Risk-Based Process Safety RBPS approach that prioritizes proactive risk management, cultural transformation, and continuous improvement.

This intensive 1-week course provides participants with a comprehensive understanding of RBPS principles and practical strategies for implementing and sustaining an effective process safety management PSM system. Covering all four pillars and twenty elements of the RBPS framework, the program blends theory with practical tools, case studies, and interactive exercises to help professionals strengthen their process safety performance and leadership.

What You'll Learn and Practice

By joining this program, you will:

- Understand the foundational principles and structure of the Risk-Based Process Safety framework.
- Develop strategies to integrate RBPS within organizational systems and culture.
- Learn to identify, assess, and manage process safety risks systematically.
- Build leadership capabilities to foster a strong process safety culture.
- Implement continuous improvement methodologies to enhance process safety performance.

The Program Flow

Day 1: Introduction to RBPS and Commitment to Process Safety

- Overview of the Risk-Based Process Safety RBPS framework.
- Building and sustaining a strong process safety culture.
- Understanding regulatory standards and compliance obligations.
- Workforce involvement, leadership commitment, and stakeholder engagement.
- Workshop: Assessing your organization's process safety maturity.



Day 2: Understanding Hazards and Risks

- Process knowledge management and documentation systems.
- Hazard identification tools and methodologies HAZOP, What-If, FMEA.
- Risk assessment and analysis techniques for process operations.
- Applying risk-based decision-making to prioritize safety initiatives.
- Case study: Risk assessment of a critical process unit.

Day 3: Managing Risk in RBPS

- Developing and implementing safe operating procedures.
- Asset integrity and reliability management systems.
- Contractor and supplier process safety integration.
- Training, competency development, and performance assurance.
- Exercise: Designing a risk control and assurance plan.

Day 4: Operational Readiness and Conduct of Operations

- Management of Change MOC principles and best practices.
- Ensuring operational readiness before startup or restart.
- Conduct of operations and operational discipline.
- Emergency preparedness and response planning.
- Simulation: Managing change and operational risk scenarios.

Day 5: Learning from Experience and Continuous Improvement

- Effective incident investigation and root cause analysis RCA.
- Measuring process safety performance through leading and lagging indicators.
- Conducting audits, reviews, and benchmarking for continuous improvement.
- Establishing a management review system for sustained RBPS effectiveness.
- Capstone project: Building a Continuous Improvement Roadmap for Process Safety.

Individual Impact

- Develop a strong understanding of process safety leadership and management principles.
- Strengthen ability to assess, manage, and mitigate operational risks.
- Gain practical tools to implement and sustain RBPS frameworks.
- Enhance credibility as a process safety professional and strategic leader.

Organizational Impact

- Build a proactive safety culture that prioritizes risk prevention.
- Reduce process safety incidents, operational disruptions, and compliance risks.
- Improve asset reliability, performance, and operational efficiency.
- Embed continuous improvement into process safety management syste



Training Methodology

This course uses an applied and interactive learning approach, combining theory with practical exercises to ensure real-world relevance and skill transfer. Learning methods include:

- Case studies from oil & gas, petrochemical, and manufacturing industries.
- Group discussions and scenario-based workshops.
- Practical exercises on hazard identification, risk analysis, and RCA.
- Development of an actionable RBPS implementation plan.
- Peer learning and instructor-led feedback sessions.

Beyond the Course

Upon completion, participants will be equipped to design, implement, and continuously improve a robust Risk-Based Process Safety Management System that enhances both safety performance and business resilience.

Graduates will leave with a clear implementation roadmap, practical tools, and the confidence to drive process safety excellence within their organizations.

