Introduction

Health, Safety, and Environmental Management Systems are structured around both proactive methods for incident prevention and reactive monitoring of performance. Risk assessment must be applied to all activities that may affect health, safety, production, assets, the environment, and the reputation of the organization.

This advanced course on process risk assessment and risk management equips participants with the knowledge and expertise required to carry out detailed risk assessments and apply appropriate risk management strategies within their organizations.

The program emphasizes a systematic approach to identifying, evaluating, and controlling risks linked to industrial processes. It introduces participants to a range of advanced tools, techniques, and methodologies that are essential to upholding health, safety, and environmental standards while protecting the organization's reputation.

Upon successful completion, participants will earn an advanced certification in risk management, demonstrating their capability in understanding the risk assessment process, applying advanced risk assessment methods, and implementing risk management strategies.

What is Risk Management Assessment?

Risk management assessment is a vital element of any comprehensive safety and risk management program. It consists of identifying possible risks, analyzing their potential impacts, and determining the most effective ways to mitigate or manage them. This course provides participants with a strong foundation in the principles of risk management assessment and applies them to practical industrial situations.

Risk Assessment Training for Managers

This program is particularly valuable as a risk assessment training resource for managers responsible for supervising risk assessment and management activities. Gaining an in-depth understanding of both theoretical and applied aspects of risk assessment is essential for leadership in the field of health, safety, and environmental management.

The course places special emphasis on health and safety within the context of risk assessment and management, ensuring participants are well-prepared to protect stakeholders, safeguard assets, and comply with regulatory obligations.

This advanced training program is designed for individuals and organizations that wish to strengthen their knowledge and capabilities in risk assessment and risk management.

Target Audience

- Managers and personnel with responsibilities for risk and incident analysis
- Production, project, process, mechanical, control, and maintenance professionals
- Health, Safety, and Environmental personnel
- Employees involved in implementing the company's Health, Safety, and Environmental Management System

Course Objectives
By the end of this program, participants will be able to:

- Differentiate between a hazard, a risk, and a risk assessment
- Evaluate various categories of risks effectively
- Apply advanced risk assessment techniques relevant to industrial processes
- Develop strategies for designing and implementing risk reduction action plans
- Understand the influence of human error in causing accidents
- Use advanced root-cause analysis techniques to investigate incidents

Core Competencies to Be Developed

- Applying advanced risk assessment techniques within industrial processes
- Balancing risk and cost to achieve optimal risk reduction measures
- Inspiring employees to contribute to an improved safety culture
- Understanding the importance of quantified risk assessment and recognizing significant hazards
- Conducting root-cause analysis in accident and incident investigations

Course Modules

Unit 1: Advanced Risk Assessment Techniques – Hazard and Operability Study

- Introduction to hazard identification and analysis methods
- Techniques for hazard identification and analysis with emphasis on Hazard and Operability Study
- Practical group exercise: application of Hazard and Operability Study to batch and continuous processes
- Integrating Hazard and Operability Study into the risk management system
- Review of commercial Hazard and Operability Study software

Unit 2: Quantified Risk Assessment

- Failure Modes and Effects Analysis
- Decision trees and Event Tree Analysis
- Identifying and using sources of failure data
- Fault Tree Analysis
- Quantification of Event Tree Analysis and Fault Tree Analysis
- Assessment of individual and societal risks

Unit 3: Fire, Explosion, and Toxic Release Mechanics

- Role of consequence analysis in quantified risk assessment
- Different types of fires: jet flame, pool fire, flash fire, and boiling liquid expanding vapor explosion
- Different types of explosions: vapor cloud explosion, unconfined vapor cloud explosion, pressure burst, and dust explosion
- Methods of vulnerability analysis
- Commercial software for modeling releases, fires, explosions, and toxic releases

Unit 4: Advanced Incident Investigation Techniques

- Human factors contributing to accidents
- Role of root-cause analysis in identifying management system deficiencies
- Techniques for accident investigation
- Identifying latent failures and underlying causes of incidents
- Applying structured techniques for root-cause analysis

Unit 5: Building a Positive Safety Culture

- Introduction to the concept of safety culture
- Methods for enhancing safety culture within organizations
- Measuring and monitoring improvements in safety culture
- Integration of safety culture into the Health, Safety, and Environmental Management System