

**Course Overview:**

This course provides understanding of the quantitative and qualitative analysis methods of safety engineering of hazardous wastes. The course also provides guidance in planning, implementing and managing an overall safety engineering program. It includes coverage of such applicable science and engineering principles as risk, human reliability, fault logic, failure modes, incident cost and prediction.

The course is presented in an applied format where several different types of industries are discussed such as Oil, gas, Chemical, Petrochemical, Power and manufacturing industries.

The course will deal with managerial options for avoiding the creation of hazardous wastes and for dealing with hazardous wastes as they are created or as they are found in contaminated sites.

**Course Objective:**

- Demonstrate an understanding and proper application of the appropriate science and engineering principles and Quality applicable aspects of risk, human reliability, fault logic, failure modes, incident cost and incident prediction.
- Identify Chemical Hazards
- Recognize Chemical Materials by Categories
- Read Material Safety Data Sheets
- Follow Storage Requirements

**Course Outline:**

- Failure tracing methods: Hazard and Operability Studies (HAZOPs) Fault Tree Analysis Failure Modes and Effects Analysis (FMEA)
- Hazardous chemicals and their safe management Industrial chemical processes Control of temperature and pressure in exothermic reactions Storage, handling and transport of dangerous substances
- Hazardous environments Principles of resistance to mechanical damage, liquid and dust ingress prevention; IP rating Use of electrical equipment in flammable atmospheres Hazardous area zoning Confined space working Safe work in excavations
- Safety aspects of gasses and pressure vessels Key features and safety requirements for process pressure systems Likely causes of failure of pressure systems Non-destructive testing techniques.
- Emergency Procedures: The need for emergency preparedness Consequence minimization via emergency procedures On-site and Off-site emergency plans Monitoring and maintenance of emergency plans

**Who Should Attend:**

- Safety Managers, Engineers, Officers and Staff
- Technical Department Managers, Engineers, Officers and Staff
- HSE and Loss Prevention Personnel
- Plant management and employees
- Superintendent, Supervisors and Foremen

**Training Language:**

EN / AR

**Training Methodology:**

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation