

H S E

HEALTH

SAFETY

ENVIRONMENT



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Safety in Process Equipment Design & Operation

Duration: 5 Days



Introduction:

In all steps of designing of pressure equipment related to hydrocarbons and chemical processing and applied in Oil & Gas, Chemical and Process industries, the process safety comes on the top of the list of all considerations. The safety remains to be of utmost importance during operation and maintenance and has to be verified with various methodologies.

This course provides an overview of important elements of process safety as they are often encountered in today's industrial practice. The emphasis is on engineering design aspects of Process Safety Management and it will feature the safeguarding aspects of processing equipment inside the plant. Techniques for analyzing and mitigating process safety hazards applicable to Oil & Gas processing will be reviewed. Integration of the concepts required to achieve an optimum approach to Process Safety Engineering is the main goal of this course. Exercises and useful examples will be utilized throughout the course to emphasize the key learning points. The course will feature:

- Selection and sizing of safety valves and pressure relief systems
- Methods for process hazards analysis: HAZOP, LOPA, FMEA
- Importance of the concept of "Inherently Safer Design"

- Design principles based on Standards for safe operation of process equipment
- Detection and prevention methods for fire and explosion accidents
- Plant Equipment Inspection (NDT) and Maintenance Procedures.

Who Should Attend?

Team Leaders, Managers, Line Managers, Supervisors, Team Leaders, Project Managers, Control Center Operators and Supervisors, Emergency Dispatchers, Security Personnel and CCTV Operators, HSE Officers, HSE Personnel, HSE Professionals, Emergency Response Team members, HSE Managers and Auditors, Health & Safety and Environmental Professionals, Fire Officers, Incident Control Point (Forward Control) Team Members, Supervisors, Inspectors, Advisors, Auditors, Laboratory Personnel, Emergency Personnel, Maintenance Personnel, Procurement managers

Course Objectives:

By the end of this course delegates will be able to:

- Understanding different aspects of process design that influence process safety
- Appreciate “inherently safer design” for the entire process plant operation
- Evaluate mechanical integrity of process equipment
- Identify hazards associated with process fluids regarding impact on material degradation
- Follow code requirements for sizing relief valves to handle relief streams
- Operate emergency de-pressuring systems (EDP) in case of fire and gas explosions

Course Outline:

Overview of Safety in Process Design

- Definition of Safety in Process Design
- Overview of Historical Incidents and Problem Areas
- Components of Process Safety: People, Plant, Process
- Risk Identification and Safety Analysis
- Process Hazard Analysis: HAZOP, LOPA, FMEA
- Hazards Associated with Specific Plant Systems
- Elimination of Hazards through Process Design
- Prevention of Human Error through Process Control and Monitoring