

Advanced Process HAZOP





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Introduction:

It is universally recognized that for any company to succeed it must take a proactive approach to risk management. Over the last few years, Companies and several countries legislators have been focusing on Process Safety as a method to reduce the risks posed by hazardous industries. Process Hazard Analysis PHA is recognized as being a critical tool in the implementation of a successful risk management system.

As Hazard and Operability HAZOP studies are now recognized worldwide as being the qualitative risk assessment methodology of choice in the Process Industries, there will be additional focus on this specific aspect of Process Hazard Analysis

Course Objectives:

At the end of this course the participants will be able to:

- Understand the concepts of Risk Assessment and Risk Management
- Understand the estimation and evaluation of risks Qualitative, Semi-Quantitative and Quantified Risks
- Learn Techniques for Hazard Identification and Analysis Check-Lists, Risk Profiling, HAZOP, FMEA, and Task-Based Risk Assessment
- Analyze Cause-Consequences The Role of Fault Trees and Event Trees in Accident Prevention
- Understand HAZOP studies their benefits and their shortcomings
- Understand the requirements of a Team Leader or Facilitator, scribe, and team members during HAZOP studies
- Facilitate a HAZOP study

Targeted Audience:

- HSE Technical Personnel
- Project Engineers
- Maintenance Personnel
- Process Engineers involved in design and modification
- Instrumentation and Control Engineers

Course Outlines:

Unit 1: Introduction to Risk Assessment:

- · The concepts of hazards, risk and risk assessment
- Methods for risk evaluation
- Integrating risk assessment within Risk Management
- · Qualitative, Semi-Quantitative and Quantitative Risk Assessment methodologies

Unit 2: Risk Assessment Techniques: HAZOP

- · Introduction to hazards identification and analysis techniques
- Techniques for hazard identification and analysis HAZOP

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- Where and when to use HAZOP and the requirements for a successful HAZOP study
- Team composition for HAZOP studies
- · Guide words and process variables used for HAZOP studies
- · Syndicate exercise application of HAZOP to relevant processes

Unit 3: Hazop Leadership Techniques:

- HAZOP team leader/facilitator requirements
- HAZOP scribe requirements
- Facilitating HAZOP studies, dols and donlts
- Information required to allow successful HAZOP studies
- A case study where each delegate has the opportunity to facilitate a HAZOP meeting
- Review of commercial software used for HAZOP and Management of Change IMOCI

Unit 4: Consequence Analysis:

- The theory behind the fire, explosion, and toxic dispersion modeling utilized in Quantitative Risk Assessments
- Types of fires and their effects on people and equipment
- Types of explosions and their effects on people and equipment
- Review of software available for consequence calculations

Unit 5: The Role of QRA:

- The role of Event Tree Analysis in scenario development
- The role of Fault Tree Analysis for multi-causation analysis
- Applications for ETA and FTA
- Failure data for use in QRAIs
- Societal Risk and Individual Risk
- · Review of software available for Quantitative Risk Assessments