

H S E

HEALTH

SAFETY

ENVIRONMENT



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Safety Engineering & Risk Management

Duration: 5 Days



Introduction:

As technological systems become more complex it becomes increasingly difficult to identify safety hazards and to control their impact. Plant

Managers and Engineers are becoming more aware that safety and risk touch on every aspect of the day to day running of their plants, engineering and process systems if they are to comply with ever changing and demanding international, and national environmental and economic values and standards. Unsafe systems can result in capital being lost due to accidents, disruption to production, criminal and civil prosecutions, loss of market share, and the degradation of company assets and the environment

This course is intended to introduce to the delegate the practical ways in which safety engineering and risk assessment systems, methods and techniques can play a significant role in eliminating, mitigating and controlling high hazard situations and conditions. Using well established principles defined by

international and professional bodies, developed and formulated over many years and further established from learning from major accidents, the course will provide the delegate with a working knowledge of the proactive and reactive processes by which quantifiable assessments can be used to assess, identify and control hazards.

Who Should Attend?

The course is ideal for plant professionals, engineers, designers and any person whom to any extent has a contribution to make in ensuring the safe operation of a potential high hazard workplace.

Course Objectives:

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

- Promote a proactive attitude within the individual to hazard analysis
- Introduce the proactive concept and benefits of safety engineering and hazard risk assessment analysis
- Help to recognize the range of the key factors to be considered in the process of hazard and risk assessment analysis
- Introduce the delegate to the methods and techniques for evaluation hazards across a variety of industry sectors
- Enlighten the delegate to the importance of continued learning from accidents and incidents
- Help promote the importance of ongoing monitoring and reviewing of safety systems

Course Outline:

- Introduction and course overview
- Why do we need safety engineering
- Examples of major disasters
- The safety system process
- Hazard identification
- Hazard control
- Risk acceptance
- Hazard reduction process
- Design out hazards
- Safety standards codes , national and international
- Safety analysis in engineering
- Safety analysis in Chemical process
- Safety analysis in manufacturing
- Safety Management

- Safety in system life cycle
- Organisational management and safety
- Management commitment
- The system safety organisation
- Developing a system safety program
- Evaluating contractors and sub contractors
- Emergency procedures and contingencies
- Hazard tracking and resolution
- System safety reviews and auditing
- Hazard analysis
- Hazard analysis methodology
- Process safety analysis
- Process hazard analysis
- What if analysis checklist
- Fault tree analysis

- Failure modes, human factors and software safety
- Conducting a failure mode and effective analysis
- Human factors safety analysis
- Performance and human error
- Human factors and safety analysis
- Safety training
- Employee training
- Emergency response and contingency planning
- Accident reporting investigation
- Reporting the accident
- Forming an investigation board
- Documenting the accident
- Risk assessment
- What is a risk
- Risk perception

- Risk assessment
- Identifying risks in a system
- Risk communication
- Risk evaluation
- A probabilistic approach
- Risk analysis model
- Developing accident scenarios and
- Event tree
- Consequence determination
- Risk evaluation- the use of risk profile
- Calculating the safety costs