

# € TRAINING

Safety Technology & Risk Management





# Safety Technology & Risk Management

## 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 and 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 monies 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

## Conference Objectives:

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

- Apply the principles of hazard identification and assessment of risk to processes and machinery
- Understand reliability concept and use of failure tracing methods
- Demonstrate a practical understanding of a quantitative risk assessment technique and the data required for records
- Advise management on the most effective control methods based on the evaluation of risk
- Identify the general requirement for the development of a safe system of work
- Recognize relevant International Standards for Reliability and Machinery Safety
- Promote a proactive attitude within the individual to hazard analysis

## Targeted Audience:

- Operations & Process Professionals
- Reliability & Safety Professionals
- Other professionals involved in process improvement

## Conference Outlines:

### Unit 1: Hazard Identification:

- Why do we need safety engineering?
- Examples of major disasters
- The safety system process
- Hazard identification
- Hazard control
- Criteria for risk tolerability
- Hazard Identification Techniques
- Design out hazards
- Safety standards codes, national and international
- Safety analysis in engineering
- Safety analysis in Chemical process
- Safety analysis in manufacturing

## Unit 2: Risk Assessment Techniques:

- Safety Management
- Safety in the system life cycle
- Hazard identification check-list
- Process, workplace, work equipment risk assessment
- Task-based risk assessment
- Introduction to HAZOP

## Unit 3: Machinery and Work Equipment Safety:

- Machinery hazard identification
- Causes and methods for machinery accident prevention
- HAZOP examples
- Failure modes, human factors, and software safety
- Conducting a failure mode and effects analysis
- Human factors safety analysis
- Performance and human error
- Human factors and safety analysis

## Unit 4: Reliability Technology:

- Types and causes of failures
- Methods of preventing failure
- Types of maintenance and inspection regimes
- Reliability of components and systems
- Design and reliability of control systems
- Design and reliability of protective systems
- The concept of "HIPS"
- Safety Integrity Levels "SIL" selection

## Unit 5: Consequences Analysis:

- Mechanics of fire, explosion, and toxic releases
- Dispersion modeling software
- Types of fire: flash, jet, cascading fires and BLEVE
- Types of explosion
- Quantification of risk
- Event Tree Analysis "ETA"