

# GULF INSTITUTE



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# Asset Integrity Management

## INTRODUCTION

- This highly participative training course will help you to understand safety critical elements and how to achieve asset integrity management. Barrier systems are used to protect humans and assets from hazards. These barrier systems may be classified as either active or passive barrier systems, and as physical, technical or human/operational barrier systems. Safety Critical Elements (SCE) are part of these barrier systems to protect against major hazardous events such as fire, explosions, collisions, etc. SCEs prevent, control, mitigate and facilitate safe evacuation from the identified major hazards. This program will employ advanced analytical tools such as Bowtie modelling for modelling preventative and corrective safety barriers for mitigation and response.
- The methodology involved risk assessment, major hazard scenario development, SCE identification, establishing a performance standard, developing maintenance, inspection and testing plans, implementing assurance activities and, finally, issuing a key performance indicator.
- Participants attending the Asset Integrity Management training course will develop the following competencies:
  - How to develop more robust asset integrity maintenance and reliability philosophy
  - Learning about asset management integration and learning from incidents of major failures
  - Risk and hazards management
  - How to get the most out of Computerised Maintenance Management Systems (CMMS)

## PROGRAM OBJECTIVES

This Asset Integrity Management training course aims to enable participants to achieve the following objectives:

- Recognize the fundamentals of asset integrity management and definition 'safety critical element' (SCE)
- Ensure good understanding of hazardous risks
- Establishing safe procedures for operations and maintenance activities
- Selecting effective control measures for hazardous risks
- Establishing effective emergency management plans and emergency response actions
- Learning from failures: decision analysis of major disasters

## WHO SHOULD ATTEND?

This training course will be beneficial to:

- Technicians and managers who need knowledge of managing hazardous materials and complex machinery.
- Personnel involved in hazardous substances management and programs
- HSE personnel involved in safety management systems
- Engineers required having knowledge of process safety aspects of plant operation
- Other personnel interested in asset management integrity

## TRAINING METHODOLOGY

- The Asset Integrity Management training course will combine presentations with interactive practical exercises, supported by video materials, activities and case studies. Delegates will be encouraged to participate actively in relating the principles of asset management to the particular needs of their workplace.

## PROGRAMME SUMMARY

- The Asset Integrity Management training course covers essential skills such as the introduction to the function of asset integrity management and how it integrates with and impacts operations, arrangement of inspection and maintenance cycles for SCEs with regards to plant operating equipment, and description of controls and procedures that are observed to control equipment stresses due to continuous or frequent operations.

## Program Outline

### Introduction to Asset Integrity Management (AIM)

- Asset Integrity Management (AIM)
- Management Responsibility
- AIM Life Cycle
- Failure Modes and Mechanisms
- Asset Selection and Criticality Determination
- Asset Integrity Procedures

### Asset Integrity and Risk Assessment

- Risk Assessment
- Project Risk Management
- Risk and Reliability Analysis
- Risk Priority Number (RPN)
- Failure Mode and Effect and Criticality Analysis (FMECA).
- Iso Critical Curves

## Inspections, Maintenance, Reliability and Repair Asset Integrity

- Inspection and Maintenance of Systems
- Monitoring of Corrosion and Erosion Damage of Pipelines
- Fault Tree Analysis (FTA)
- Reliability Block Diagrams (RBD)
- Minimum cut Set Analysis (MCSA)
- Case Studies from various industries

## Performance Measures and Key Performance Indicators (KPIs)

- Challenges of Performance Measures
- Performance Measures as a Continuous Improvement Process
- The Overall Equipment Effectiveness (OEE) as a Source of Best Practice in Maintenance
- Best and Worst Practices in Performance Measures
- Performance measures for Total Productive Maintenance (TPM)
- Performance measures for Reliability Centred Maintenance (RCM)
- Common maintenance metrics and development of the maintenance department scorecard

## Best Practice Through Manufacturing and Maintenance Systems

- How to get the most of your Computerised Maintenance Management System (CMMS)?
- Benefits that can result from CMMS
- Optimum Decisions for Maintenance Policies
- The Applications of the Decision Making Grid (DMG)
- How to transform Data to Decisions
- Examples of Approaches and Case Studies. Examine the organizational and managerial considerations for effective maintenance work

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