Process Plant Equipment Inspection & Repair Techniques

Oil & Gas Engineering
Accra (Ghana)
28 Jul - 08 Aug 2025

Process Plant Equipment Inspection & Repair Techniques

Ref: 321587_141389 **Date:** 28 Jul - 08 Aug 2025 **Location:** Accra (Ghana) **Fees:** 5600 **Euro**

Course Description

This intensive 10-day course provides comprehensive training on the inspection, evaluation, and repair of process plant equipment and connected piping. Participants will gain in-depth knowledge of industry standards, best practices, and cutting-edge techniques for maintaining plant integrity and reliability. The course covers a wide range of topics, from basic inspection methods to advanced repair strategies, equipping attendees with the skills needed to enhance plant safety and efficiency.

Learning Objectives

- Understand and apply industry codes and standards for equipment inspection and repair
- Master various inspection techniques and their appropriate applications
- Develop skills in evaluating equipment condition and determining fitness-for-service
- Learn effective repair and alteration methods for process plant equipment and piping
- Gain proficiency in risk-based inspection and maintenance planning
- Enhance decision-making skills for equipment lifecycle management

Course Modules

Day 1: Introduction to Process Plant Equipment Integrity

- Overview of process plant equipment and piping systems
- Importance of equipment integrity in plant safety and reliability
- Introduction to industry codes and standards ASME, API
- Basic principles of equipment lifecycle management

Day 2: Inspection Techniques and Tools

- Visual inspection methods and best practices
- Non-destructive testing NDT techniques
- Advanced inspection technologies e.g., drones, robotics
- Inspection data collection and management

Day 3: Corrosion and Degradation Mechanisms

- Common corrosion types in process plants
- Material degradation mechanisms
- Corrosion monitoring techniques
- Corrosion prevention and control strategies

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Day 4: Risk-Based Inspection RBI

- Principles of risk-based inspection
- RBI methodologies and implementation
- Developing and managing an RBI program
- Case studies in RBI application

Day 5: Fitness-for-Service FFS Assessment

- Introduction to FFS concepts and methodologies
- API 579/ASME FFS-1 standards overview
- FFS assessment techniques for common damage mechanisms
- Practical examples and case studies

Day 6: Piping Inspection and Evaluation

- Piping system components and failure modes
- Inspection techniques for piping systems
- Evaluation of piping condition and remaining life
- Piping flexibility analysis and stress assessment

Day 7: Pressure Vessels and Storage Tanks

- Inspection and evaluation of pressure vessels
- Storage tank inspection techniques
- Fitness-for-service assessment for vessels and tanks
- Repair and alteration considerations

Day 8: Rotating Equipment Inspection

- Inspection techniques for pumps, compressors, and turbines
- Vibration analysis and monitoring
- Lubrication system inspection and maintenance
- Alignment and balancing considerations

Day 9: Repair and Alteration Techniques

- Welding repair methods and considerations
- Mechanical repair techniques
- Composite repairs for piping and equipment
- Quality control in repair and alteration projects

Day 10: Maintenance Planning and Management

- Developing effective maintenance strategies
- Shutdown planning and execution
- Root cause analysis of equipment failures

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- Continuous improvement in maintenance practices

Practical Wins for Participants

- Ability to develop and implement risk-based inspection programs
- Skills to perform fitness-for-service assessments on damaged equipment
- Knowledge to make informed decisions on equipment repair vs. replacement
- Capability to enhance plant reliability and reduce unplanned downtime

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