Training Course:

Material Selection Corrosion & Inspection in the Oil & Gas Refinery Systems

Training Course For One Week In

UAE, Dubai, Cityseason Suites Hotel

Which Be Held As Under Details:

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Abar Solutions Petroleum Consultancy Invite Your Employee To Participate With Us In Special Training Course As Under Details:

<table>
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<tr>
<th>Course Name</th>
<th>Material Selection Corrosion &amp; Inspection in the Oil &amp; Gas Refinery Systems</th>
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**The Fees Includes: Lecturer, Training Material, Training Room With One Coffee Break Daily, Certificate Of Attendance In Last Day Training Course**

Course Description

⇒ Corrosion problems have always presented a severe challenge to oil and gas producing operations. Operators plan for long periods of continuous production with maintenance schedules for the prescribed shutdown periods. Unfortunately, corrosion does not always respect these schedules, resulting in severe economic penalties due to loss of production. In addition, the risk of pollution and hazards to safety are other important reasons for adequate corrosion engineering.
Course Objectives

⇒ Upon completion of this course, you will gain an understanding of corrosion engineering in oil and gas refinery systems involving the various methods available for corrosion control, regulatory and safety matters, and the contribution of an integrated monitoring and inspection programme for operations and diagnosis of problems.

Course Content & Outlines

⇒ **Economics of Corrosion Damage:**
  - Loss of production
  - Maintenance costs
  - Effects on the environment
  - Safety

⇒ **Fundamentals of Corrosion:**
  - Introduction
  - Electrochemical Reaction
  - Polarization Data- Corrosion rates
  - Electrode Potential
  - Passivity

⇒ **Forms of Corrosion:**
  - General Corrosion
  - Atmospheric
  - Galvanic
  - High Temperature
  - Low Temperature

⇒ **Localized Corrosion:**
  - Filiform
  - Crevice
  - Pitting
  - Localized Biological (Bacterial)

⇒ **Metallurgical Influenced corrosion:**
Intergranular
De-alloying (leaching)

⇒ Mechanically Assisted Degradation:
- Erosion
- Fretting
- Fatigue

⇒ Environmentally Induced Corrosion:
- Stress corrosion Cracking (SCC)
- Hydrogen Damage
- Embrittlement

⇒ Corrosion Control Methods:
- Engineering Design
- Environmental effects
- Consideration of Geometry
- Elimination of Stress
- Material Selection & Temperature, Pressure & Velocity Considerations
- Design Codes
- Codes of Practice and Standards

⇒ Corrosion Inhibitors:
- Types of Inhibitors
- Choice and selection
- Criteria for effectiveness

⇒ Cathodic Protection:
- Principles of Operation
- Application
- Survey
- Galvanic system
- Impressed current system
- Criteria for effectiveness
⇒ Coating and Lining:
   - Organic and Inorganic
   - Metallic
   - Surface preparation
   - Inspection during application

⇒ Material Selection:
   - Carbon Steel, Low Alloy, Stainless Steel and Duplex steel
   - Non-Ferrous Metals
   - Non metallic materials

⇒ Corrosion monitoring:
   - Methods
   - Design Considerations
   - Data handling and presentation
   - Evaluation of Results

⇒ Inspection and Non-Destructive Testing (NDT)
   - Inspection Function
   - Inspection Methods
   - Data Management System
   - NDT Contractors

⇒ Failure Analysis:
   - On site investigation
   - Laboratory Analysis of Corrosion Failure

⇒ Specific Corrosion Problems in the Oil and gas Refinery Systems:
   - Corrosion in the Crude handling Equipment
   - Corrosion in the Process Equipment
   - Corrosion In the Utilities i.e. Steam Production and Cooling Water Systems

⇒ Quality Assurance:
   - Philosophy
   - Quality profile
   - Role of Certifying Authority