

# CORROSION CONTROL AND MITIGATION TECHNIQUES

## MCE039

### COURSE DESCRIPTION

Oil companies are extremely concerned with minimizing corrosion for reasons of safe and efficient operations, in addition to cost and finance. This 5-day course provides a comprehensive treatment of all corrosion problems commonly encountered in oil/gas field equipment and utilities. Special emphasis has been put on techniques of monitoring and inhibiting applications. Participants will leave this course with full practical knowledge of corrosion monitoring, detection and control techniques (coupons, probes, corroding specimens etc...) Included also are special applications in preventing corrosion including electro plating, cladding, coatings etc.)

### COURSE GOAL

To enhance the participant's knowledge, skills, and abilities necessary to understand and apply various corrosion control and mitigation techniques for safe and efficient operations in industries like oil and gas, chemical, medicine, and food.

### COURSE OBJECTIVES

By the end of the course, participants will be able to:

- Identify the root causes of corrosion in different industries.
- Implement effective corrosion control and mitigation strategies.
- Understand the principles of corrosion and its various forms.
- Utilize different techniques for monitoring and detecting corrosion.
- Apply corrosion control methods suitable for diverse service environments.

### WHO SHOULD ATTEND

Engineers and technicians from oil and gas industries, chemical industries, medicine industries, food industries, and similar nature industries.

### COURSE DURATION

5 Working Days

### COURSE OUTLINES

1. **Overview of Corrosion Control and Mitigation**
  - Understanding the corrosion process.
  - Importance of corrosion control in various industries.

## 2. Materials Selection for Corrosion Control

- Matching materials to service environments.
- Considerations in the design process.

## 3. Predicting Corrosion Behavior

- Evaluating materials in different conditions (water, steam, temperature, gases, etc.).
- Units used for expressing corrosion rates.

## 4. Energetics of Corrosion Process

- Electrode potentials and their role.
- International convention and examples.

## 5. Corrosion in Different Environments

- Soil corrosion and resistivity measurements.
- Atmospheric corrosion and high-temperature oxidation.

## 6. Detection and Monitoring Techniques

- Corrosion detection using specimens, coupons, probes.
- Electrical & electrochemical methods.

## 7. Inspection Techniques for Different Equipment

- Downhole inspection tools.
- Surface equipment inspection using ultrasonic testing, radiography, and visual inspection.

## 8. Corrosion Inhibitors and Mitigation Strategies

- Anodic inhibitors.
- Cathodic inhibitors.
- Neutralizing inhibitors.
- Adsorptive inhibitors.

## 9. Elements of an Effective Corrosion Control Program

- Monitoring strategies.
- Testing & inspection methods.
- Failure analysis.
- Economic considerations.

arctic