



**MAESTRO**  
CONSULTANTS

# **CORROSION AWARENESS AND MONITORING**

## **COURSE OUTLINE 2020**

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## **TRAINING TITLE**

CORROSION AWARENESS CONTROL AND MONITORING

## **VENUE**

Dubai, UAE

## **DURATION**

5 Days

## **DATES**

05 - 10 April 2020

## **PRICE**

US\$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet daily.

## **TRAINING INTRODUCTION**

This course will cover the properties of materials, theory of corrosion, types of corrosion, and preventative measures (likely locations, inspection and monitoring techniques, variables affecting corrosion). You will also learn about corrosion monitoring, structural damage mechanisms, degradation of materials in-service conditions, and types of failure.

In addition, the course will look at basic electrical theory associated with corrosion, inspection techniques and the application of conventional ultrasonic methods.

## **TRAINING OBJECTIVES**

- To understand the fundamentals of material failure at normal and plant operating condition and why different material behave differently - strategic maintenance methods
- To understand how plant aging can cause catastrophic failures and the methodology of inspection
- Importance of monitoring and modern methods
- Case studies from plant failures and failure analysis to reinforce understanding of theory
- To understand corrosion in other structural materials as concrete fiberglass and nonmetals

## **TRAINING AUDIENCE**

Candidates who intends taking certification- For those interested in learning fitness for service of plant and equipment- for Managers and staff interested in health safety and environment of unintended plant failure-for planning Managers interested in MRO and plant maintenance and know all about inspection and monitoring

This five day intensive Short Course is intended for Engineers, Technicians, Managers, Supervisors, Salespersons, Inspectors, Anyone needing a basic understanding of corrosion.

This is a value added package with practical, test papers, quiz etc

## **COURSE OUTLINE**

Corrosion

The need for corrosion awareness

The cost of corrosion

Why metals and materials deteriorate

The impact of environment

The school textbook definition of corrosion

The modern definition of corrosion

The atomic theory

Setting up a corrosion cell in the lab.

Why different materials react in different ways and rates

More definitions of corrosion – spontaneous, unseen, irreversible

The mistaken common notion, anode, cathode

Polarization – the slowing down process

Tafel's slope – a clue to control corrosion

Understanding corrosion – forms – causes –soil, water ,bacteria, atmosphere, gases and vapours, and steam-operating conditions as pressure, temperature, velocity, stress, product input variations

Avoidance and control of each – explained through

Case studies.

Four-way method of controlling corrosion

What is cathodic protection – how it works – principles

Typical examples of CP

The galvanic and impressed.

The components

Coating – types

- limitations
- failure and detection
- how it works with CP

Inhibitors - types

- limitations
- case studies

Material selection and design

- cost of overdesign
- new materials
- S Steel,. High Ni alloys, fiber glass

Estimating corrosion loss

- Faraday's law
- Weight loss, coupon
- ER
- Polarization techniques
- NDT – Eddy – UT, PT, RT
- Microscopy / lab techniques

Corrosion monitoring - coupon

- Pig
- Endoscopies
- Acoustic
- CP
- Coating failure

Corrosion of - SS

- Concrete
- Fiberglass and plastics
- Bacterial
- Nonferrous Al, Cu alloy

High temp. Corrosion.

## **TRAINING CERTIFICATE**

**MAESTRO CONSULTANTS** Certificate of Completion for delegates who attend and complete the training course

## **METHODOLOGY**

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of “real life” issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.