

# CORROSION MANAGEMENT IN INDUSTRIES

## INTRODUCTION

Managing corrosion in industries, is the most effective method to reduce the cost of the products. This short course is intended to discuss the various corrosion control methods used to manage the corrosion, as well as the basic principles of corrosion, thus extending the life of the engineering components.

## Who Should Attend

- Corrosion Engineers and Technicians.
- Inspection, Maintenance Engineers and Managers.
- Chemical, Metallurgical, Mechanical, Civil, Industrial, and Petroleum Engineers.
- Safety, and Risk Professionals.

## AIMS AND OBJECTIVES

- Addresses the types of corrosion problems encountered in various industries, especially the Oil and Gas industries.
- It is aimed at corrosion engineers under going career development.
- It provides a useful refresher for the senior corrosion professionals.
- It provides corrosion awareness for engineers from various disciplines who wish to broaden their understanding of the corrosion aspects of projects or facilities for which they are responsible.

## PRESENTER

### Dr Hussein Rahmatalla

Dr Hussein Rahmatalla, currently is a Full Professor of Engineering Materials and Metallurgy in the Department of Mechanical Engineering, College of Engineering, University of Qatar, Doha, since September 2003. He is also head of Materials Technology Unit in University of Qatar. He obtained his Ph.D. degree in Metallurgy from University of Strathclyde, Glasgow, UK, in 1976. He has long Academic and Industrial experiences in the field of Corrosion, Metallurgy, Engineering materials, and Welding in several Universities as well as in the Industries.

From 1993 till the year 2000, Dr. Rahmatalla worked as Full Professor in the University of Jordan, Industrial Engineering Department, Amman-Jordan, during which his contribution to the Jordanian Industries was remarkable. From 1982 till the year 1993, he was an Associate and then a Professor, and also Head of Metallurgical Engineering Division in University of Technology, Bagdad-Iraq. After obtaining his Ph.D. in 1976 and till the year 1982, he appointed as a Lecturer in Mechanical Engineering Department in Basra University, Iraq. During his work in the Iraqi Universities, Dr. Rahmatalla involved in so

## PROGRAM

### DAY ONE

- Background: Corrosion and its Consequences
- Cost of Corrosion
- Prediction of Corrosion
- Basic Electrochemical Theory of Corrosion
- Forms of Corrosion
  - Uniform
  - Localized (Mechanical, SCC, HIC and SOHIC)
  - Localized (Non-mechanical, Crevice, Bi-metal, and Pitting, and Erosion-corrosion)

### DAY TWO

#### Corrosion in Specific Industrial Environments:

- Corrosion in Water
- Corrosion in Soil
- Microbially Influenced Corrosion (MIC)
- Corrosion in Oil and Gas Industries (Sweet and Sour Systems)

### DAY THREE

#### Design for Corrosion Control:

- Materials Selection
  - Alloy Designations
  - Carbon Steels, Low Alloy Steels and Cast Irons

- Stainless Steels
- Nickel and Copper Alloys

### DAY FOUR

- Cathodic Protection
- Protective Coatings
  - Metallic Coatings
  - Inorganic and Organic Coatings
  - Corrosion Inhibition

### DAY FIVE

- Corrosion Testing and Monitoring
- Corrosion Economics
- Corrosion Testing, and Evaluation.
  - Simulated Service Testing.
  - Corrosion Testing in Atmosphere.
  - Corrosion Testing in Water.
  - Corrosion Testing in Soil.
- Corrosion Evaluation.
  - Evaluation of Pitting Corrosion.
  - Evaluation of Intergranular Corrosion.
  - Evaluation of SCC, and Hydrogen Damage.