

MATERIALS / CORROSION ENGINEERING & MANAGEMENT

“Optimizing Asset Longevity Through Effective Materials Selection and Corrosion Control”

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** Face-to-Face & Online Training, In-House Training

Introduction

In today’s highly demanding industrial environments, effective materials and corrosion management is vital for ensuring the long-term performance, safety, and integrity of infrastructure. This course offers a thorough grounding in corrosion science, materials selection, protective techniques, and lifecycle asset management strategies. Designed for professionals in oil & gas, energy, and industrial sectors, it combines engineering principles with practical management tools to mitigate material degradation and extend asset service life.

Objectives

By completing this course, participants will:

- Understand corrosion fundamentals and material degradation processes
- Learn how to select appropriate materials for various service environments
- Analyze and mitigate risks associated with corrosion
- Apply corrosion protection and monitoring systems effectively
- Integrate corrosion management into overall asset management plans

Why Attend

- Reduce unplanned shutdowns and maintenance costs through proactive strategies
- Improve the reliability and safety of operations across critical infrastructure
- Gain confidence in making informed decisions about materials and protection systems
- Understand international standards and regulatory requirements for corrosion management

Target Audience

- Materials and corrosion engineers
- Mechanical and design engineers
- Asset integrity and maintenance managers
- Process engineers and plant managers
- QA/QC and HSE professionals
- Project and operations engineers

Individual Benefits

- Enhance technical expertise in corrosion and materials science
- Develop cross-disciplinary insight into design, inspection, and failure analysis
- Strengthen career profile in asset integrity and engineering roles
- Learn to interpret data from corrosion monitoring and inspection systems

Organizational Benefits

- Prevent material failures and costly repairs
- Strengthen compliance with industry regulations (API, NACE, ISO)
- Improve project design and operational efficiency
- Ensure long-term performance and ROI of critical assets

Instructional Methodology

- Instructor-led lectures and visual case walkthroughs
- Interactive group discussions and knowledge sharing
- Real-world industry case studies
- Hands-on exercises in corrosion analysis and materials evaluation
- Daily knowledge checks and Q&A sessions

Course Outline

DETAILED 5-DAY COURSE OUTLINE (Customizable) Training Hours: 07:30 AM – 03:30 PM Daily Format: 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1 – Fundamentals of Corrosion & Materials Science

- Module 1 (07:30 – 09:30): Introduction to Corrosion Mechanisms
- Module 2 (09:45 – 11:15): Environmental Effects on Corrosion (Marine, Subsea, Sour Service)
- Module 3 (11:30 – 01:00): Metallurgy and Material Properties Overview

Day 2 – Material Selection & Compatibility

- Module 4 (07:30 – 09:30): Selection of Metals and Alloys for Corrosive Environments
- Module 5 (09:45 – 11:15): Polymer, Composite, and Non-Metallic Materials
- Module 6 (11:30 – 01:00): Materials Compatibility & Failure Case Studies

Day 3 – Corrosion Control Techniques

- Module 7 (07:30 – 09:30): Protective Coatings: Types, Applications, and Failures
- Module 8 (09:45 – 11:15): Cathodic Protection: Design, Monitoring, and Maintenance
- Module 9 (11:30 – 01:00): Corrosion Inhibitors: Types and Use Cases

Day 4 – Monitoring, Inspection & Risk-Based Management

- Module 10 (07:30 – 09:30): Corrosion Monitoring Methods & Field Tools
- Module 11 (09:45 – 11:15): Risk-Based Inspection (RBI) for Corrosion Management
- Module 12 (11:30 – 01:00): Interpreting Inspection Data & Predictive Analytics

Day 5 – Integrated Corrosion Management & Case Studies

- Module 13 (07:30 – 09:30): Developing and Implementing Corrosion Management Systems (CMS)
- Module 14 (09:45 – 11:15): Asset Integrity Integration & Cross-Functional Coordination
- Module 15 (11:30 – 01:00): Industry Case Studies, Final Assessment, and Action Planning

Certification

Participants will receive a Certificate of Completion in Materials & Corrosion Engineering & Management, endorsed by industry practitioners and aligned with global engineering standards.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
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- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

In-House / Customized Training

Interested in running this course for your team?

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