

CORROSION ENGINEERING & MANAGEMENT

"Protecting Assets, Enhancing Integrity, and Reducing Lifecycle Costs through Corrosion Control Strategies"

Schedule

Date	Venue	Fees (Face-to-Face)
12 - 16 Apr 2026	Manama, Bahrain	USD 3495 per delegate
13 - 17 Jul 2026	Dubai, UAE	USD 3495 per delegate
06 - 10 Dec 2026	Doha, Qatar	USD 3495 per delegate

► Available delivery methods: Face-to-Face & Online Training

Introduction

Corrosion is a leading cause of equipment failure, safety incidents, and asset depreciation across industrial sectors such as oil & gas, power generation, water treatment, and manufacturing. Understanding how corrosion occurs—and more importantly, how to prevent and manage it—is essential to maintaining operational efficiency and asset longevity.

This comprehensive course delivers both the technical foundations and practical applications of corrosion engineering and management. Participants will explore corrosion mechanisms, materials selection, protective coatings, cathodic protection, inspection strategies, and lifecycle cost analysis. Real-world case studies will reinforce key concepts and help bridge the gap between theory and field implementation.

Objectives

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

- Identify and evaluate common corrosion mechanisms in industrial environments
- Select appropriate materials, coatings, and inhibitors for corrosion control
- Design and implement effective corrosion monitoring and inspection programs
- Apply cathodic protection principles and techniques for asset protection
- Assess corrosion-related risks and integrate mitigation into asset management plans

Why Attend

- Gain in-depth knowledge of corrosion science and mitigation techniques
- Reduce asset degradation and extend service life of equipment and infrastructure
- Strengthen your ability to troubleshoot corrosion problems in the field
- Improve safety, regulatory compliance, and operational reliability
- Enhance planning and budgeting for maintenance and integrity programs

Target Audience

This program is designed for:

- Corrosion engineers and specialists
- Asset integrity, reliability, and maintenance engineers
- Process and mechanical engineers
- Inspection, QA/QC, and plant operations personnel
- Project and facility managers responsible for asset performance

Individual Benefits

Key competencies that will be developed include:

- Understanding of electrochemical and environmental corrosion mechanisms
- Selection of corrosion-resistant materials and protective systems
- Implementation of inspection, testing, and monitoring methods
- Cost analysis and prioritization of corrosion mitigation strategies
- Ability to collaborate across engineering and operations for risk control

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Reduced corrosion-related failures and downtime
- Improved asset lifecycle management and investment planning
- Enhanced safety and regulatory compliance
- Better integration of corrosion management into operational strategy
- Optimized inspection and maintenance resource allocation

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings - Corrosion fundamentals, material science, and protection methods
- Case Studies - Industry-specific failures and successful mitigation programs
- Workshops - Corrosion assessment, protective system design, and cost evaluation
- Peer Exchange - Real-world challenges and solutions across industries
- Tools - Corrosion rate calculators, inspection planning templates, and risk ranking models

Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Introduction to Corrosion Science and Mechanisms

- Module 1: Fundamentals of Corrosion (07:30 – 09:30) • Electrochemical processes and corrosion cell formation
- Module 2: Types of Corrosion (09:45 – 11:15) • Uniform, galvanic, pitting, crevice, MIC, and stress corrosion
- Module 3: Workshop – Identifying Corrosion Modes (11:30 – 01:00) • Analyze visual examples and case scenarios
- Module 4: Peer Exchange – Plant-Specific Corrosion Challenges (02:00 – 03:30) • Discussion of failure histories and context

Day 2: Materials and Protective Systems

- Module 5: Corrosion-Resistant Materials and Alloys (07:30 – 09:30) • Material selection criteria for different environments
- Module 6: Protective Coatings and Paint Systems (09:45 – 11:15) • Surface preparation, types of coatings, and quality control
- Module 7: Workshop – Coating System Selection (11:30 – 01:00) • Choose protective systems based on operating conditions
- Module 8: Case Study – Coating Failure Investigation (02:00 – 03:30) • Root cause analysis and corrective recommendations

Day 3: Cathodic Protection and Chemical Inhibitors

- Module 9: Cathodic Protection Principles (07:30 – 09:30) • Sacrificial anode and impressed current systems
- Module 10: Corrosion Inhibitor Selection and Use (09:45 – 11:15) • Chemical dosing and compatibility considerations
- Module 11: Workshop – Cathodic Protection Design Exercise (11:30 – 01:00) • Apply calculations and layout for sample systems
- Module 12: Peer Exchange – CP Implementation Challenges (02:00 – 03:30) • Discuss application in pipelines, tanks, and marine environments

Day 4: Inspection, Monitoring, and Testing

- Module 13: Corrosion Monitoring Techniques (07:30 – 09:30) • Coupons, probes, ultrasonic testing, radiography
- Module 14: Inspection Planning and Data Interpretation (09:45 – 11:15) • Setting intervals, choosing techniques, and trend analysis
- Module 15: Workshop – Develop a Corrosion Monitoring Plan (11:30 – 01:00) • Select methods and establish KPIs for a facility
- Module 16: Case Study – Integrity Campaign Results Review (02:00 – 03:30) • Lesson learned from inspection findings

Day 5: Corrosion Management and Lifecycle Planning

- Module 17: Corrosion Risk Assessment and Ranking (07:30 – 09:30) • Criticality analysis, probability vs. consequence
- Module 18: Lifecycle Costing and ROI for Corrosion Projects (09:45 – 11:15) • Economic justification for mitigation investments
- Module 19: Final Project – Corrosion Management Strategy Proposal (11:30 – 01:00) • Develop a plant-wide plan with budget and priority
- Module 20: Wrap-Up, Feedback, and Certification (02:00 – 03:30) • Course review and certificate distribution

Certification

Participants will receive a Certificate of Completion in Corrosion Engineering & Management, validating their ability to assess, prevent, and manage corrosion across critical industrial systems in alignment with global best practices.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **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?

Please contact us:

TEL:

+601116373203

EMAIL:

info@mawaevents.net

© Material published by MAWA Events shown here is copyrighted. All rights reserved. Any unauthorized copying, distribution, use, dissemination, downloading, storing (in any medium), transmission, reproduction or reliance in whole or any part of this course outline is prohibited and will constitute an infringement of copyright.