



PB INSTITUTE OF RESEARCH AND TECHNOLOGY

P.O Box 21457-00100

Nairobi - Kenya

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Advanced Corrosion Management Training Course

Duration: 10 days

On-Site

01 Who Should Attend

- This course is ideal for:
- Materials Engineers
- Maintenance Managers
- Integrity Specialists
- Inspection Engineers
- Corrosion Engineers
- Chemical Engineers
- Asset Managers

02 About the Course

Protect your assets and ensure operational longevity with our Advanced Corrosion Management Training Course. This program is designed to equip you with the essential skills to implement sophisticated corrosion management strategies, preventing costly failures and extending the lifespan of critical infrastructure. In today's demanding industrial environments, mastering advanced corrosion control is crucial for organizations seeking to maintain safety, efficiency, and profitability. Our advanced corrosion management training course provides hands-on experience and expert guidance, empowering you to apply cutting-edge techniques for real-world applications.

This advanced corrosion management training delves into the core concepts of corrosion mechanisms, advanced inspection technologies, and data-driven mitigation strategies, covering topics such as electrochemical corrosion, non-destructive testing (NDT), and predictive corrosion modeling. You'll gain expertise in using industry-standard tools and techniques to advanced corrosion management, meeting the demands of modern industrial operations. Whether you're a corrosion engineer, integrity specialist, or maintenance manager, this Advanced Corrosion Management course will empower you to drive proactive corrosion control and protect your organization's assets.



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03 Workshop Objectives

- Master advanced electrochemical corrosion mechanisms and control.
- Utilize advanced non-destructive testing (NDT) technologies for corrosion detection.
- Implement predictive corrosion modeling and risk-based inspection (RBI).
- Design and build robust corrosion monitoring and mitigation systems.
- Optimize corrosion management programs using data analytics and AI.
- Troubleshoot and address common challenges in advanced corrosion control.

04 Module Topics

Module 1: Introduction to Advanced Corrosion Management

- Fundamentals of advanced corrosion management.
- Overview of advanced corrosion mechanisms and control strategies.
- Setting up an advanced corrosion management framework.
- Introduction to advanced corrosion tools and technologies.
- Best practices for advanced corrosion management.

Module 2: Electrochemical Corrosion Mechanisms

- Mastering advanced electrochemical corrosion mechanisms and control.
- Utilizing cathodic protection and anodic protection.
- Implementing electrochemical impedance spectroscopy (EIS).
- Designing and building electrochemical corrosion monitoring systems.
- Best practices for electrochemical corrosion control.

Module 3: Advanced Non-Destructive Testing (NDT)



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- Utilizing advanced non-destructive testing (NDT) technologies for corrosion detection.
- Implementing ultrasonic testing (UT) and phased array UT (PAUT).
- Utilizing radiographic testing (RT) and computed tomography (CT).
- Designing and building NDT inspection plans.
- Best practices for advanced NDT.

Module 4: Predictive Corrosion Modeling and RBI

- Implementing predictive corrosion modeling and risk-based inspection (RBI).
- Utilizing computational corrosion modeling and simulation.
- Implementing risk-based inspection (RBI) methodologies.
- Designing and building corrosion prediction models.
- Best practices for predictive modeling.

Module 5: Corrosion Monitoring and Mitigation Systems

- Designing and building robust corrosion monitoring and mitigation systems.
- Utilizing remote monitoring and sensor technologies.
- Implementing chemical inhibition and coating systems.
- Designing and building integrated corrosion management plans.
- Best practices for monitoring and mitigation.

Module 6: Data Analytics and AI for Corrosion Management

- Optimizing corrosion management programs using data analytics and AI.
- Utilizing machine learning for corrosion prediction.
- Implementing data visualization and dashboarding.
- Designing and building AI-driven corrosion management systems.
- Best practices for data analytics.

Module 7: Troubleshooting Advanced Corrosion Control



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- Troubleshooting and addressing common challenges in advanced corrosion control.
- Analyzing inspection data and performance reports.
- Utilizing problem-solving techniques for resolution.
- Resolving common corrosion control errors.
- Best practices for troubleshooting.

Module 8: Regulatory Compliance and Best Practices

- Implementing regulatory compliance and industry best practices.
- Utilizing NACE and ISO standards.
- Designing and building compliance reporting systems
- Optimizing compliance monitoring and documentation.
- Best practices for regulatory compliance.

Module 9: Integration into Asset Integrity and Maintenance

- Integrating corrosion management into asset integrity and maintenance programs.
- Utilizing asset integrity management systems (AIMS).
- Implementing corrosion management in maintenance and repair operations.
- Designing and building integrated integrity programs.
- Best practices for integration.

Module 10: Large-Scale Corrosion Management Programs

- Understanding how to manage large-scale corrosion management programs.
- Utilizing project management tools and techniques.
- Implementing program evaluation and reporting.
- Designing scalable corrosion management solutions.
- Best practices for program management.

Module 11: Advanced Corrosion Applications



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- Exploring advanced corrosion applications (digital twins, advanced materials).
- Utilizing digital twins for corrosion simulation and monitoring.
- Implementing advanced materials and coatings.
- Designing and building advanced corrosion protection systems.
- Optimizing advanced applications for specific use cases.
- Best practices for advanced applications.

Module 12: Real-World Corrosion Management Use Cases

- Applying real world use cases for advanced corrosion management in various industries.
- Utilizing corrosion management for offshore structures.
- Implementing corrosion management for pipelines and storage tanks.
- Utilizing corrosion management for chemical processing plants.
- Implementing corrosion management for infrastructure projects.
- Best practices for real-world applications.

Module 13: Advanced Corrosion Tools Implementation

- Leveraging advanced corrosion tools and frameworks for efficient implementation.
- Utilizing corrosion simulation and modeling software.
- Implementing advanced NDT data analysis tools.
- Designing and building automated corrosion management workflows.
- Best practices for tool implementation.

Module 14: Monitoring and Metrics

- Implementing corrosion management monitoring and metrics.
- Utilizing corrosion performance indicators and KPIs.
- Designing and building monitoring systems for corrosion projects.
- Optimizing monitoring for real-time insights.
- Best practices for monitoring.

Module 15: Future Trends in Corrosion Management



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- ▶ Emerging trends in advanced corrosion technologies and applications.
- ▶ Utilizing advanced sensor and monitoring systems.
- ▶ Implementing robotic inspection and repair.
- ▶ Best practices for future corrosion management.