Port Infrastructure Cathodic Protection Management Training Course

27 September – 1 October 2027
Addis Ababa

AGILE LEADERS
Training Center

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Ref: 500_223718 **Date:** 27 September – 1 October 2027 **Location:** Addis Ababa **Fees:** 6000 Euro

Overview

Port Infrastructure Cathodic Protection Management Training Course is a one-week advanced course for port and marine engineers, corrosion engineers, asset-integrity professionals, electrical engineers, maintenance managers, inspectors, consultants, and terminal operators who leave with a Port Cathodic Protection Monitoring and Management File. Participants connect corrosion exposure, system configuration, potential measurements, coatings, interference, monitoring, and maintenance decisions across port assets. Agile Leaders Training Center presents port cathodic protection through traceable data, performance diagnosis, and lifecycle control.

Who Should Attend

- Port engineering functions responsible for marine structural assets
- Corrosion and integrity functions responsible for protection-system performance
- Electrical functions responsible for impressed-current equipment and interfaces
- Inspection and maintenance functions responsible for measurements and interventions
- Terminal and client functions responsible for asset risk, access, and contractor assurance

The course assumes participants can interpret basic electrical measurements and marine-asset drawings, and it leaves out regulated electrical work, diving, detailed final design, and professional certification.

Departments and Industries

The course supports departments and industries that manage metallic and reinforced-concrete assets exposed to seawater, brackish water, or marine mud.

- Ports, terminals, harbours, and marine transport infrastructure
- Quay walls, jetties, dolphins, piles, fenders, and sheet-pile systems
- Marine civil engineering and waterfront contractors
- Industrial marine facilities, shipyards, and coastal utilities
- Corrosion, integrity, electrical, inspection, and maintenance departments

Learning Objectives

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

- Analyze marine corrosion exposure and cathodic-protection needs
- Compare galvanic-anode and impressed-current system applications
- Apply reference-electrode and potential-measurement controls
- Evaluate current distribution, continuity, coating, and interference evidence
- Diagnose monitoring deviations and maintenance priorities
- Build a Port Cathodic Protection Monitoring and Management File

Course Agenda

Day 1: Marine Corrosion and Port Asset Context

- Electrochemical corrosion and marine exposure zones
- Seawater, brackish water, mud, tidal, splash, and atmospheric conditions
- Steel piles, sheet piles, jetties, dolphins, quay structures, and reinforced concrete
- Coatings, marine growth, damage, and access constraints
- Asset boundary and corrosion-risk register

Day 2: Cathodic Protection Systems and Design Basis

- Galvanic-anode and impressed-current system principles
- Anode materials, current sources, cables, connections, and distribution
- Protection criteria, current demand, life, and design assumptions
- Coating breakdown and current-demand interaction
- Design-basis and asset-configuration review

Day 3: Measurement and Monitoring

- Reference electrodes and marine potential measurements
- Measurement location, contact, positioning, and repeatability
- Instant-off, polarization, and depolarization awareness
- Continuity, current output, rectifier, and test-point records
- Monitoring plan, frequency, baseline, and acceptance rules

Day 4: Interference and Performance Diagnosis

- Stray-current and adjacent-system interference pathways
- Shielding, poor distribution, coating damage, and electrical discontinuity
- Underprotection, overprotection, abnormal output, and measurement error
- Steel and reinforcing-steel protection considerations
- Evidence matrix and troubleshooting decision tree

Day 5: Maintenance and Asset Management

- Anode, cable, connection, rectifier, and reference-electrode maintenance
- Underwater inspection evidence and contractor interfaces
- Defect, deviation, urgency, and intervention prioritization
- Suggested Exercise: Port CP Monitoring and Diagnosis Workshop
- Capstone Exercise: Port Cathodic Protection Monitoring and Management File

Practical Exercises

The course uses suggested exercises to turn cathodic-protection readings and inspection evidence into controlled asset decisions.

- Suggested activity: map port assets, exposure zones, coatings, electrical continuity, and protection-system boundaries.
- Suggested activity: prepare a reference-electrode measurement and monitoring plan.
- Suggested activity: diagnose underprotection, interference, continuity, coating, and instrumentation scenarios.
- Suggested activity: prioritize maintenance and assemble an auditable system-performance record.

FAQs

What does cathodic protection do for port infrastructure?

Cathodic protection reduces corrosion of submerged or buried metallic surfaces and reinforcing steel by controlling their electrochemical condition through galvanic anodes or impressed current.

Who suits port cathodic protection training, and what does it assume?

The course suits marine, corrosion, electrical, integrity, inspection, maintenance, consulting, and terminal professionals. It assumes basic familiarity with electrical measurements and marine assets.

How does cathodic protection management differ from detailed design training?

Management training focuses on asset boundaries, evidence, monitoring, diagnosis, maintenance, and decisions. Detailed design training develops calculations, specifications, engineering verification, and professional design competence.

Why can cathodic protection readings vary in ports?

Readings can vary because of tide, salinity, temperature, marine growth, reference-electrode position, contact, current cycling, coating condition, electrical continuity, interference, and measurement practice.

What belongs in a cathodic protection monitoring record?

It includes asset and system configuration, measurement method and location, reference-electrode details, environmental conditions, readings, equipment output, continuity observations, inspection findings, deviations, actions, and review dates.

Conclusion

Participants take back a Port Cathodic Protection Monitoring and Management File linking asset exposure, system configuration, criteria, measurements, coating condition, continuity, interference, deviations, maintenance, and review dates. It provides a traceable basis for integrity decisions across port and marine infrastructure.