MODERN CATHODIC PROTECTION SYSTEMS: DESIGN, FABRICATION, INSTALLATION, OPERATION AND REPAIR

COURSE OVERVIEW

This course offers in-depth knowledge and practical skills in modern cathodic protection (CP) systems used to prevent corrosion in metallic structures such as pipelines, storage tanks, marine structures, and reinforced concrete. Covering both impressed current and sacrificial anode systems, the course emphasizes design standards, material selection, fabrication techniques, installation procedures, operational monitoring, and troubleshooting of CP systems. It also includes real-world applications, failure analysis, and compliance with international standards such as NACE and ISO.

DATES, VENUES AND FEES

07 – 11 September 2025 - Dubai

(5 Days)

Fees US$ 4500

Note: Fee is per participant + 5% VAT (if applicable).
Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Corrosion engineers and technicians
- Pipeline and facility integrity specialists
- Maintenance and inspection personnel
- Project and design engineers
- Field operators and supervisors responsible for CP systems
- Asset integrity managers and consultants

CONTACT US NOW

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ACCREDITATION

This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements.
CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

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

- Understand corrosion principles and the role of cathodic protection in corrosion control
- Design effective CP systems for onshore and offshore assets
- Select appropriate anode types and power sources
- Supervise or perform fabrication and installation of CP systems
- Monitor, test, and maintain CP system performance
- Diagnose common CP problems and implement corrective actions
- Comply with industry codes such as NACE SP0169 and ISO 15589

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COURSE OUTLINE

DAY 1

Fundamentals of Corrosion and Cathodic Protection

- Pre test
- Corrosion mechanisms and types affecting metallic structures
- Principles of electrochemical corrosion control
- Overview of cathodic protection: theory and purpose
- Types of CP systems: Sacrificial Anode and Impressed Current
- Industry standards and regulatory requirements (NACE, ISO, API)

DAY 2

Design Principles of Cathodic Protection Systems

- CP design criteria and calculations
- Current requirements and polarization behavior
- Soil resistivity and environmental factors
- Anode selection and configuration
- Design tools and software overview
- Designing CP for pipelines, tanks, and buried structures

DAY 3

Fabrication and Installation Techniques

- CP materials: anodes, rectifiers, cables, coatings, and junction boxes
- Impressed current system fabrication: anode beds, groundbeds
- Installation procedures for buried and submerged systems
- Safety considerations during installation
- Interference problems and mitigation techniques
- Inspection during installation and commissioning procedures

DAY 4

Operation, Monitoring, and Maintenance

- Routine CP system monitoring and data logging
- Measurement techniques: potential readings, current output, IR drop
- Criteria for evaluating CP effectiveness
- Remote monitoring systems and smart sensors
- Preventive maintenance procedures
- Troubleshooting: detecting and correcting malfunctions

DAY 5

Case Studies, Repairs, and Rehabilitation

- Common CP failures and root cause analysis
- CP system repair and component replacement
- Upgrading aging systems for compliance and performance
- Rehabilitation strategies for non-performing CP systems
- Field case studies
- Final review
- Post test

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