

Advanced Cathodic Protection Training

Course Price

£3050

Course Description

This short course is highly beneficial to personnel such as engineers, technologists, designers and technicians who are associated with the design and management of cathodic protection systems. It is also valuable to general users who are concerned with the detrimental effect of corrosion.

The course provides progressive knowledge and innovative skills on the concept of corrosion and CP technology.

Course Objectives

To provide an in-depth technical knowledge of Cathodic protection methodology

To understand Cathodic protection system design and the associated parameters

To understand Principles of Corrosion and Corrosion Control

Monitoring and Management of CP protected structures

Who Should Attend

This short course is intended for field operators and inspectors, metallurgists, technicians and personnel who require knowledge of Cathodic Protection

Course Content

DAY ONE

- Fundamentals of Metallurgy
- Material Selection



- Material/Fluid compatibility
- Topside/ Subsea Materials
 - Fundamentals of Corrosion
 - Electrochemical reaction/ series
 - Types of Corrosion
- General or uniform corrosion
- Localised corrosion
 - Galvanic corrosion
 - Pitting corrosion
 - Crevice corrosion
 - HISC
 - Corrosion control and prevention methods
 - Inhibitors
 - Selection and testing of inhibitors
 - Inhibitor Availability & Inhibitor Efficiency
 - Case study 1 & 2

DAY TWO

- Introduction to Cathodic Protection (CP)
- Principles of Cathodic Protection
- Criteria for Cathodic Protection
- Impressed versus Sacrificial
- Sacrificial Anode Cathodic Protection (SACP)
- Requirements for SACP
- Anode materials
 - Impressed Current Cathodic Protection (ICCP)
- ICCP anodes
- Power sources
- Electrical connections
 - Cathodic protection system design
- Anode resistances
- Coating breakdown factor
- Current densities



- Effect of temperature on CP design
- Review of DNV RP B401
- CP design calculations
- Case study 3& 4 – Team exercise
- Cathodic disbonding and blistering

DAY THREE

- Corrosion Monitoring and Management
- CP and concrete
- Cathodic protection of steel in concrete
- Ground bed design (Impressed system)
- Current drain test
- Sacrificial anode system in soil
- Calcareous films
- Case studies 5 & 6
- Underground pipelines
- Cathodic Protection of underground pipelines
- Potential decay along pipeline
- CP marine platforms
- Reference potential devices
- CP Potential distribution
- Current interrupters
- Test rectifiers
- Holiday detectors

DAY FOUR

- Stray Current Corrosion and prevention methods
- Sources of Stray Current
- Effects of Stray Current on metallic structures
- Mitigation of interference effects
- Coating Selection
- Pipeline Coatings
- Characteristics of Pipeline Coatings
- Types of Pipeline Coatings
- Case studies 7 & 8
- Specification and Inspection (Industry standard review)
- Coating failures
- Field Joint Coatings and applications
- Factory- applied vs. Field- applied
- Cathodic Protection and Coatings

DAY FIVE

- Pipeline Inspection: Survey methods and Evaluation techniques
- Overview of NACE Standard on “Pipeline External Corrosion Direct Assessment Methodology”
- Long range ultrasonic testing (LRUT)

- Advantages and Limitations of LRUT
- Conventional UT vs. LRUT
- Case studies 5 & 6
- Introduction to CPCM technology
- Conventional current measuring methods vs. CPCM
- Overview of course
- End of course Exam (optional)

CPD Unit

Continuing Professional Development

35 HOURS CPD