

Certificate of Competence in Cathodic Protection of Reinforced Concrete

By Distance Learning

Level 2*



*Successful completion of this course is recognised by the Institute of Corrosion as fulfilling the mandatory training element of Level 2 certification and allows student to sit the Level 2 reinforced concrete cathodic protection examination

Introduction

Corrosion of steel in concrete is a major threat to infrastructure the world over. Cathodic protection is recognised as an economical method of repairing concrete subject to the commonest cause of corrosion. In order to address the levels of technical competence required to carry out a successful installation a British and European Standard has been produced (BS EN 15257) that outlines the levels of training and education required for personnel. There are 3 levels of personnel described in the standard. On a simple basis, Level 3 personnel produce designs and specifications for cathodic protection systems and interpret results, Level 2 personnel produce method statements that Level 1 personnel follow. The standard also outlines the four sectors that cathodic protection is employed, i.e. reinforced concrete, buried and submerged structures, immersed structures and tank internals.

In response to this the Institute of Corrosion and the Corrosion Prevention Association have combined to produce a syllabus, course notes and examination that achieve the requirements of the European Standard. This course relates to Level 2 certification for cathodic protection personnel in reinforced concrete.

Distance Learning Training Modules For the award of the Certificate of Competence

All five modules must be completed, together with coursework (short answer questions), within 18 months of registration. A certificate of achievement will be awarded upon satisfactory completion of each module. Start dates are flexible.

The course has been prepared in conjunction with the Institute of Corrosion Professional Development and Training Committee and the Corrosion Prevention Association.

The certificate will demonstrate the required level of training has been achieved in accordance with EN 15257 with respect to a level 2 cathodic protection technician for reinforced concrete. In order to become a certificated level 2 cp technician in reinforced concrete an exam must be sat. The exam is provided by the Institute of Corrosion's course provider. Currently this is Argyll Ruane, based on Rotherham, UK. The exam must be sat at their examination centre in Rotherham. Individual modules may be undertaken for CPD purposes.

Modules 1 to 3 represent the core subjects for cathodic protection. Modules 4 and 5 represent the sector specific items.

Each module will involve approximately at least 10 hours of study.

The formal assessment will form part of the 10 hours of study including coursework. An external examiner will review the coursework.

Start dates are flexible, with modules due for completion within 30 working days of receiving the course materials.

Module 1

Module 1 comprises a brief introduction to corrosion and corrosion protection methods in common usage, explaining the benefits and uses of cathodic protection. This is followed

by a short description of Quality Assurance and Control, and the documentation likely to be encountered when working on cathodic protection, including method statements, risk assessments, specifications and relevant international standards.

This is followed by an introduction to chemistry, discussing the relevant terminology likely to be encountered and balanced chemical equations

Module 2

Module 2 provides basic corrosion theory. It introduces valency of molecules, moles and the Faraday relationship. It further introduces Evans diagrams and explains factors influencing corrosion, including anode to cathode area ratios. It expands on corrosion protection methods covered in Level 1 including more detail on coatings and surface preparation and then goes on to introduce cathodic protection, with reference to Pourbaix Diagrams. It provides a table of protection potentials for different materials in a range of environments.

Module 3

Module 3 provides a more detailed introduction to cathodic protection and the types of structure that normally receive cathodic protection. It also covers typical surveys used for cathodic protection in the sectors encountered. It provides detail on the causes of corrosion of steel in concrete. In addition problems associated with cathodic protection, such as interference and interaction are addressed.

Module 4

Module 4 provides a detailed introduction to concrete, explaining the different types of reinforcement encountered with regards the consequences for cathodic protection. It provides a detailed discussion on the causes of corrosion, and limitations associated with test techniques used. It also covers currently available anode systems (impressed and galvanic). It presents the criteria for cathodic protection and recommendations for frequency of monitoring.

Module 5

Module 5 addresses design of cathodic protection systems, including information on how to read a number of different types of reinforcement detail drawing to extract design information. It guides the candidate through the design process from developing zone sizes and layouts, to cable sizing.

CONTACT

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For course availability:

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Please note that the programme is subject to change without prior notice.

Please enrol me on the following components of the '**Cathodic Protection of Reinforced Concrete Level 2**' course, (Subject to terms & conditions)

Module # 1 @ £255 Module # 2 @ £255 Module # 3 @ £255

Module # 4 @ £255 Module # 5 @ £255

All five modules @ £1150

Please send all correspondence to:

Aston CPD Centre, Aston House, 6 Greville Drive, Edgbaston, Birmingham, B15 2UU

Please reserve place(s) at the '**Cathodic Protection of Reinforced Concrete Level 2**' course – as indicated above.

Delegate Name(s).....

Company

Address

.....

Tel No: Fax No:

Email Address:.....

Do you wish to be invoiced? YES/NO.....

Purchase Order No:

Invoice address if different from above.....

.....

Total Cost £.....being for Module 1 2 3 4 5

All five modules @ £1150

(Cheques should be made payable to Aston CPD)