



ENGINEERING STAFF COLLEGE OF INDIA



Autonomous Organ of The Institution of Engineers (India)
(IMS [ISO 9001:2015, ISO 14001:2015, ISO 50001:2018, ISO 45001:2018],
ISO/IEC 17025:2017 Certified, AICTE & CEA Recognized Institution)
Old Bombay Road, Gachibowli, Hyderabad – 500 032. Telangana, India

Management and Technology Division

Hybrid (Offline & Online) Continuing Professional Development Programme on **Advanced Corrosion Engineering and High Performance Protective Coatings**

Dates: 08 – 12 June 2026
at ESCI Campus, Hyderabad

INTRODUCTION

Minerals are extracted and converted into metals to harness their valuable properties. These properties are further enhanced through alloying, mechanical working, and heat treatment. However, each of these processes requires substantial consumption of energy and resources, along with a significant environmental footprint. Despite these efforts, metals naturally tend to revert over time to their more stable, combined states through the process of corrosion. For this reason, corrosion is often referred to as the “*cancer of industry.*”

The economic impact of corrosion is considerable, with global losses estimated at approximately 3–5% of GDP. Any effort to slow down material degradation can therefore lead to substantial savings in resources and a reduced environmental burden. Moreover, corrosion control is far more economical than the replacement of damaged materials. It also plays a critical role in ensuring safety by preventing failures such as the collapse of corroded bridges or accidents caused by weakened structures.

A clear understanding of corrosion mechanisms and their mitigation can significantly reduce these losses. Knowledge of corrosion science and engineering, along with the wide range of available prevention techniques, enables engineers to effectively control or at least retard corrosion processes. Methods such as cathodic protection, appropriate material selection, use of corrosion inhibitors, and sound engineering design are essential tools in minimizing corrosion-related costs and risks.

Surface engineering further complements these approaches by modifying the properties of the surface layer to resist environmental degradation. By enhancing the durability of the surface in its service environment, surface engineering offers effective strategies for minimizing corrosion and extending the lifespan of materials.

OBJECTIVES

The objectives of the Programme are

- To understand the basic principles of corrosion and its consequences
- To understand the fundamentals of materials selection for mitigating the corrosion problems.
- To understand the surface phenomenon concepts for corrosion occurrence and control.
- To have an overview of the concepts of coating for high and low temperature applications
- To learn the current trends and emerging technologies for Corrosion control.
- To gain knowledge of Tests and Standards used in Corrosion.

COURSE COVERAGE

The following course content will be detailed during the training programme:

- Fundamentals of Corrosion: Phenomena & Mechanism
- Types of Corrosions and preventions
- Types of metallic Corrosion
- Corrosion Controls & Corrosion Inhibitors:
- Corrosion prevention Methods: Barrier Coatings, Hot-Dip Galvanization, Alloyed Steel, Cathodic and Anodic Protection

- Corrosion related failure analysis
- Introduction to Coatings - Concepts, Processes and Applications
- Metallic and Inorganic Coatings, Organic Coatings and Linings
- Electro and electro less coatings
- Surface Engineering for prevention of corrosion and material degradation.
- Recent developments in Corrosion and Surface Engineering with Emerging Technologies
- Corrosion Testing, Standards and Quality Assurance
- Selection of materials for oil, chemical, gas, naval Applications.

METHODOLOGY

Methodology of the Programme includes class room Sessions with Lecture/discussion with audio visual aid, benched marked practices if any, video shows, Chalk & Talk sessions, group discussions, case studies, debates, sharing of experiences, etc. All the sessions will be interactive demanding active participation from all the members. Case Method of Instructions will be the main method of knowledge facilitation. Technical Field and Social visits are integral part of the training methodology.

TARGET PARTICIPANTS

Senior & Middle Level Engineers, Executives, Managers and Quality Assurance Executives, Scientists, responsible for maintenance & operation of equipment/systems pertaining to Power plants, Refineries, Fertilizers, Pharmaceuticals, Railways, Power Plants, Nuclear Industries Chemical Engineering set ups, Navy, Army Air force, Production and Manufacturing set ups. In addition, faculty from academic institutions will also be benefitted by the course. Defence Establishments like Dockyards, Base Repair Depots, EME Workshops will find it very useful, leading them to excel in their performance.

BENEFITS TO THE PARTICIPANTS

- Understanding the types and occurrence of corrosion.
- Understand methodologies for corrosion control
- Gain knowledge in mitigating corrosion risks in their respective domains at their work places.
- Have knowledge of the advanced materials as substitutes for better corrosion control.
- Gain knowledge about the testing and standards used in corrosion.
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EXPERT FACULTY

The faculty consists of experts from industry, research establishments and academia besides that from ESCI.

PROGRAMME DIRECTOR

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PROGRAMME COORDINATOR

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PROGRAMME DATES & TIMINGS

Dates: 08 – 12 June 2026

Timings: On the first day Registration will commence at **09:00 Hrs**. On all other days the programme timings will be from **09:45-17:15 Hrs** with breaks in between for tea and lunch.

COURSE FEE: Rs.27,500/- (Rupees Twenty Seven Thousand and Five Hundred only) per Participant + GST@18% Extra. Fee includes, course material, course kit, twin-sharing/single AC accommodation as per availability, breakfast, lunch, dinner, tea / coffee and snacks during the actual days of training programme.

Online: WebEx platform

Rs. 17,500 /- (Rupees Seventeen Thousand and Five Hundred only) per participant + GST@18% Extra.

Programme fee is to be paid in in favor of “**THE INSTITUTION OF ENGINEERS (INDIA) – ENGINEERING STAFF COLLEGE OF INDIA**” in the form of demand draft payable at Hyderabad. Alternatively, the payment may be made by Electronic Fund Transfer (EFT) to ESCI - **SB A/c No.0432104000039631 with The IDBI Bank Ltd., Gachibowli Branch, Plot No. 2-53/2, JNIBF, IIIT Junction, Gachibowli, Hyderabad-500032 by RTG’s/ NIFT / IFSC Code No: IBKL0000432**. While using EFT method of payment, please ensure to communicate us your company name, our Invoice reference and programme title.

CERTIFICATION

A Certificate of participation will be awarded to each participant on conclusion of the programme.

GENERAL INSTRUCTIONS

- ESCI encourages participants to present case studies from their respective organizations.
- ESCI provides complimentary accommodation and boarding to the participants one day before commencement (Check-in 1200 h) and one day after conclusion (Check-out 1200 h) of the programme duration. Overstay charges will be applicable as per ESCI rules (subject to availability of accommodation).
- Well-developed Information Centre and Internet facilities are available to the participants free of cost.