



Engineering Staff College of India

Autonomous Organ of The Institution of Engineers (India)

Old Bombay Road, Gachibowli, Hyderabad – 500 032, Telangana, India



Management and Technology Division

Continuing Professional Development Programme on

Corrosion Engineering, Emerging Technologies, Coatings & Advance Material

03 – 05 December 2019



(An ISO 9001:2015 Certified, AICTE & CEA Recognized Institution)

Centre for Promotion of Professional Excellence

INTRODUCTION

Minerals are converted to metals in order to benefit from their useful properties. The properties are further enhanced by alloying, working and heat treating. However, all these steps involve a heavy expenditure of resources and energy in various metallurgical operations. The cost to environment is also significant. Unfortunately, over a period, through the **process of corrosion**, the metal tends to get back to the combined form, which is more stable. **Corrosion has been termed "Cancer of industry"**.

The cost of loss due to corrosion is estimated to be 3 to 5% of GDP. Any attempt to slow down this process of material degradation will mean huge savings in resources and lesser burdening of the environment. Corrosion Control is more economical than loss of materials. It also enhances safety, for example, by preventing collapse of corroded bridges and fall from corroded ladders. The cost of corrosion and the consequent failures can be reduced substantially, if the mechanism of corrosion and its mitigation is understood.

An understanding of the underlying principles of corrosion science and engineering and knowledge of the multitude of techniques that have been developed to combat corrosion greatly aid the engineer in prevention or at least retardation of corrosion. The corrosion control methods, e.g., the cathodic protection, proper materials selection, using the inhibitors, and the proper designing, are very essential to be understood in order to reduce the cost of corrosion.

Surface engineering involves altering the properties of the Surface Phase in order to reduce the degradation over time. This is accomplished by making the surface robust to the environment in which it will be used. The subject of Surface engineering provides strategies towards minimal corrosion.

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 .

CONTENTS

The key areas to be deliberated in the programme are:

Basics of Corrosion Science and Engineering

- Corrosion protection by Design
- Corrosion Monitoring, Measurement and Control
- Coatings - Types, Concepts, Processes, Applications
- Electro and electro less coatings
- Corrosion Inhibitors and Water Treatment
- Corrosion Testing, Standards and Quality Assurance
- **Surface Engineering & Metal Finishing**
- Advances in surface engineering applications
- Surface Engineering for prevention of corrosion and material degradation.
- Recent developments in Corrosion and Surface Engineering with Emerging Technologies
- Selection of materials for oil, chemical, gas ,naval Applications
- Case Studies in Corrosion and Surface Engineering Failures & Corrective Actions

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 Airforce, 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.

METHODOLOGY

Methodology of the programme includes class room Sessions with Lecture/discussion with audio visual aid, benched marked 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. CMI will be the main method of instruction.

FACULTY & RESOURCE PERSONS

Core Advisor & Resource Persons:

- **Mr GVR Murthy**
- **Mr Surendar Kumar**

Other faculty consists of experts from industry, research establishments, academia and experts who are into emotional intelligence research work are involved, **besides that from ESCI.**

Benefits to the Participants

Benefits to participants:

- Understanding the methodologies for corrosion control
- Gain knowledge for mitigating corrosion risks in their respective domains of work
- Knowledge of advanced materials and coating technologies
- Carry out cost benefit analysis using the current and emerging technologies

PROGRAMME VENUE, DATES & TIMINGS

Venue: Engineering Staff College of India (ESCI) Campus, Old Bombay Road, Gachibowli, Hyderabad. 500032. TS, India.

DATES: 03 – 05 December 2019

TIMINGS

On the first day Registration will commence at 0900 h. On all other days the programme timings will be from 09.45-17.15 Hrs with breaks in between for tea and lunch.

COURSE DIRECTOR



**GpCapt. (Retd) BS Phillora, BE (ETC), AE (L), MMS (DS), M Phil, FIE, Certified Lead auditor ISO9001:2015
Dean of Studies, ESCI &
Sr. Faculty & HoD
Management & Technology Division ESCI**

COURSE FEE

₹ 15,500/- (Residential Fee) per participant. Fee includes, course material, course kit, twin-sharing AC accommodation as per availability, breakfast, lunch, dinner, tea / coffee and snacks during the actual days of training programme.

DISCOUNTS

- ❖ **Non-Residential Fee-** 10% discount on course fee is allowed for non-residential participants.
- ❖ **Group Discount:** Additional 10% discount for three or more participants, if sponsored by the same organization.

(All discounts are applicable only if fee is received at ESCI before the commencement of the programme.) Goods and Services Tax @ 18% is to be paid extra over and above the training fee. PAN Card No AAATT3439Q; **GST No. 36AAATT3439Q1ZV.** (Under commercial training or coaching services).

Programme fee is to be paid in favour of "IE (I)-Engineering Staff College of India" in the form of demand draft payable at Hyderabad at par cheques payable at any Bank Branches.

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. ESCI PAN No. is AAATT3439Q. While using EFT/ Draft method of payment, kindly forward a covering letter giving details on the names of the participants, Title and the programme schedule so that proper accounting can be done.

Online registration shall be available on ESCI website.([URL:www.escihyd.Org](http://www.escihyd.org)) or Click on:<http://www.escihyd.org/index.php/mt-upcoming-trainings>

To register, manually please send your nominations giving details of name, designation, contact address, email address, mobiles no, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to:

Head, Management & Technology Division

Engineering Staff College of India

Old Bombay Road, Gachibowli, Hyderabad 500 032, Telangana, India

Phone: Direct 040 6630 4111, 6630 4112 &6630 4105.

Fax : 04066304103 & 914030995227

Email : mt@escihyd.org,

CERTIFICATION:

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

GENERAL INFORMATION

- 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.
- **Nominating authorities are requested to kindly send the contact details of the participants while sending their nomination letter. This will help us in making necessary administrative arrangement for them.**