

Corrosion Prevention and Control: Importance in the Era of Sustainable Development

Overview

Corrosion prevention and control is viewed as integral part of the sustainable development due to the huge loss of resources due to corrosion. Sustainable development is embodied with the concept of development that meets the needs of the present, while not compromising the ability of future generations to meet their needs. Corrosion degradation cause huge loss of resources, economic damage and ecological cost, and energy loss. Therefore, pro-active use of better materials and designs and protective measures should be an integral part of today's development goals in various technological sectors. Equally important is the corrosion monitoring and using the information for predictive maintenance in order to optimize the cost of maintenance during the product life cycle. Many surface engineering solutions used today are not environmentally friendly for example chrome-based corrosion protection systems. Alternative green solutions are available, however they are inferior and needs understanding on how they influence the environment. Green corrosion protective measures are important as a strategic goal for sustainable development.

The primary objectives of this GIAN course are as follows:

- i. Educate participants on fundamentals of corrosion theory and engineering, corrosion protection and prevention, and corrosion testing and monitoring.
- ii. Building knowledge among participants on how corrosion is important topic in connection with sustainable development goals by presenting corrosion and resources loss (including environmental impact) in key sectors such as transportation (including E-mobility), architecture, renewable energy, and industrial systems.
- iii. Show the importance of material and proper material selection in corrosion control, and corrosion of recycled material in relation to sustainability, and build up knowledge on how to tackle these issues.
- iv. Enhancing the knowledge on corrosion prevention using surface engineering methods and need for finding green alternatives that are better than existing solutions today.
- v. Complementary hands-on lab work to demonstrate to participants on corrosion prevention and protection strategies and sustainability relationship, and how it is important for circular economy.

Course Information	Dates: 17th - 21st April 2023 Corrosion Prevention and Control: Importance in the era of sustainable development
You Should Attend If...	<ul style="list-style-type: none">• Senior undergraduate students (B.Tech and B.Sc.), and graduate students at the M.Sc., M.Tech., MS, and Ph.D. level.• Students and faculty from Metallurgical, Materials, Chemical, Chemistry, Physics, Electrical, Engineering Design, and allied Departments.• Engineers, physicists, chemists, and researchers who work in electrochemistry, corrosion, and surface engineering.• Industry participants working in corrosion, corrosion control and prevention. <p>Number of participants for the course will be limited to 50</p>

Fees	<p>The participation fees for taking the course are as follows:</p> <p>Participants from abroad : US \$ 500 Students : INR 1000 Faculty : INR 5000 Industry / Research Organizations : INR 30000 Government Organizations : INR 10000</p> <p>The above fee includes all instructional materials, laboratory equipment usage charges, 24 h free internet facility.</p> <p>Modes of payment: Online transfer: Click here to pay: https://elearn.nptel.ac.in/gian/</p>
Accommodation	<p>The participants may be provided with hostel accommodation, depending on availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel/</p>
Registration Procedure	<p>Please use the following steps for the registration:</p> <ol style="list-style-type: none"> 1. Go to GIAN website (http://www.gian.iitkgp.ac.in/GREGN/index). First time users need to register and pay a one-time fee of INR 500/ 2. Enroll for the course: Corrosion Prevention and Control: Importance in the era of sustainable development. Once you enroll for the course, an Enrolment/ Application number will be generated, and the course coordinators will be notified.
<h2 style="color: #0056b3;">The Faculty</h2>	
	<p>Dr. Rajan Ambat is a Professor in Corrosion and Surface Engineering at the Department of Mechanical Engineering, Technical University of Denmark. He has expertise in macro-, micro- and nano- scale corrosion, teaching and developing courses on material selection and corrosion. Current research interests include corrosion of electronic devices and power electronics control systems, microstructure and corrosion of light aluminium alloys, and corrosion under oil & gas and carbon capture and storage etc.</p>
	<p>Dr.-Ing. Lakshman Neelakantan is a Professor in the Department of Metallurgical and Materials Engineering at the Indian Institute of Technology Madras, India. His research interests are on corrosion characteristics of engineering materials & coatings, smart coatings for corrosion protection, micro-/mechano- electrochemistry and materials electrochemistry.</p>
<h2 style="margin: 0;">Course Coordinator</h2> <p>Prof. Dr.-Ing. Lakshman Neelakantan</p> <p>Department of Metallurgical and Materials Engineering Indian Institute of Technology Madras, Chennai – 600036 Tel: 044 2257 4786 Email: nlakshman@iitm.ac.in</p>	