

ADVANCED FUNCTIONAL COATINGS ON GLASS AND PLASTICS (ADVACOAT)

Overview

In recent days, the issue of global warming has become one of the most pressing challenges facing humanity. The continuous rise in global temperatures, primarily due to human activities such as the burning of fossil fuels, deforestation, and industrial pollution, has led to a significant imbalance in the Earth's ecosystems. This has triggered a widespread discussion across the world on the urgent need for sustainable development practices—particularly in the construction and energy sectors. One of the critical areas under focus is the creation of energy-efficient and environmentally compatible buildings, which are essential for reducing the carbon footprint of human infrastructure. Buildings, both commercial and residential, are responsible for a large percentage of energy consumption globally—mainly for heating, cooling, lighting, and appliances.

The GIAN course includes lectures about advanced materials (photochromic, thermochromic, electrochromic, transparent conducting, anti-soiling, hydrophobic), laboratory scale and industrially scalable methods of materials synthesis and characterization, about indoor, outdoor and demo house testing of the materials as well as communication to customers. The GIAN lecturer has more than 20-year work experience on smart materials for building window applications, solar cells, and materials and on building industry-academic collaboration. The lectures will motivate the young minds to understand the situations and to utilize the smart coating windows in the buildings.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules	1: ADVACOAT : April 15 - April 29 Number of participants for the course will be limited to 40.
You Should Attend If...	<ul style="list-style-type: none">▪ You are a student of MSc/M.Tech/PhD, post-doctoral fellow or faculty from academic institution interested in pursuing research career in materials for Smart window coatings.▪ You are a scientist/researcher from industry and government organizations.
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$100 Industry/ Research Organizations: INR 5000 Academic Institutions staff: INR 3,000 Students/ Scholars: INR 2,000 The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, free internet facility. The participants will be provided with accommodation on payment basis. Note: <u>There is no central registration on the GIAN portal (gian.iith.ac.in); registration will be managed directly by the hosting institute.</u>

The Faculty



Dr. Smagul Karazhanov is a Senior Researcher in the Department for Solar Energy Materials and Technologies, Institute for Energy Technology, Kjeller, Norway, leading researcher at the Thin Film Laboratories and era chair of the center on smart windows for zero emission buildings at the Institute of Solid State Physics of the University of Latvia, Riga, Latvia. His research interests include materials for applications in chromogenics, solar cells, photocatalysis, defects and impurities in semiconductors as well as theoretical modelling of materials by density functional theory and device modelling for solar cells,. <https://ife.no/en/employee/smagul-karazhanov-2/>



Dr. M. Jeyanthinath is Associate Professor in the Department of Materials Science, School of Chemistry Madurai Kamaraj University, Madurai. His research interest is development of advanced materials for Opto-electronic devices, Renewable energy systems including thermoelectric materials and semiconductors
<https://mkuniversity.ac.in/new/school/sc/jeyanthinath.php>



Dr. V.S. VASANTHA is a Professor, Chairperson and Head of Department of Natural Products Chemistry, School of Chemistry, Madurai Kamaraj University. Her research interest are Electroplating, Corrosion, Photocatalysis Biosensors and Fuel Cell.
<https://mkuniversity.ac.in/new/school/sc/vasantha.php>

Course Co-ordinator

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Registration link:
https://docs.google.com/forms/d/e/1FAIpQLSd4n3g7FxcwashEimu8LOFHZA80iixU7gVydjApGG_NCVjflg/viewform?usp=mail_form_link

Note: The Selected participants will be intimated with the selection and payment details for the course.