About IIT Delhi

IIT Delhi is one of the oldest technological institutes in India. The institute has nearly 35 academic units that impart knowledge on Engineering, Science, Design, Social Science, among others. IIT Delhi has been instrumental in providing solutions to technological and societal problems through its academic and research activities. IIT Delhi has been consistently placed among top academic universities around the globe, and as per the recent QS University ranking, the institute stands at 61st in the list of Engineering and Technology domain. Recently, IIT Delhi has been elevated to the status of “Institution of Eminence” by Govt. of India.

Scope of the Course

The aim of this course is to deliberate upon the chemistry of nanostructured materials through a guided series of online lectures and demonstrations. The course will include lecture sessions with emphasis on interdisciplinary research in the frontier areas of nanotechnology; Energy, Environment and Healthcare. Deliberation on modern methods of synthesis and characterization of nanomaterials. A few live demonstration sessions will also be conducted where the participants can learn the practical aspects of nanochemistry introduced during the lectures. The certificates for participation will be provided only on getting at 80% attendance to the course.

Learning Outcomes

- Design and develop the desired nanostructured materials
- Understand the structure-property relationship for applications of nanomaterials
- Initiate a research activity in the field of nanostructured materials. The participants would be able to draft an effective research proposal in the area of nanomaterials
- Promoting newer research endeavour in the challenging domain of nanomaterials

Course Contents

Lectures: Introduction to nanostructures and nanomaterials; Nanomaterials for energy conversion and storage applications including photovoltaics, solar water splitting, supercapacitors and batteries; Nanomaterials for environmental remediation applications such as detoxification of environmental pollutants, carbon dioxide reduction; Nanomaterials for healthcare applications with the focus on state of the art sensor devices.

Demo Session: Demonstrations on CsPbBr3 synthesis, Characterization using UV-Vis absorption and PL, Water splitting experiment including device fabrication, DSSC solar cell fabrication, and measurement; Fabrication of supercapacitor devices and electrochemical measurements; Raman-based differentiation of pharmaceuticals using Open source visual programming, machine learning, and data visualization.

Course Coordinator

Prof. Pravin P. Ingole, Associate Professor, Department of Chemistry, IIT Delhi.
E-mail: ppingole@chemistry.iitd.ac.in    Phone: 011-2659-7547
Target Audience

The course is designed for the faculty members of TEQIP-III institutes. Participants (students, faculty members and industry employees) from non-TEQIP-III institutions are also welcome to register by paying fees.

Registration

**Batch Size:** The course is limited for 50 faculty participants from TEQIP-III institutes and the registration will be considered on **FIRST COME, FIRST SERVE** basis. **No registration fee for TEQIP-III participants.** However, a refundable security deposit of ₹2,000, for completion of registration process is mandatory.

For the non-TEQIP-III participants’ mandatory registration fee for participation as follows:

- ₹ 5,000/- + 18% GST – Research Scholars
- ₹ 10,000/- + 18% GST – Faculty
- ₹ 30,000/- + 18% GST – Industry participants

**Fee/ Security Money is payable online to the IITD CEP Account.** Account details as follows:

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<tr>
<th>Name of Account holder</th>
<th>IITD CEP Account</th>
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**Important Dates**

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<tr>
<td><strong>Deadline for registration</strong></td>
<td>30th October 2020</td>
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<tr>
<td><strong>Confirmation of registration</strong></td>
<td>02nd November 2020</td>
</tr>
<tr>
<td><strong>Deadline for payment</strong></td>
<td>05th November 2020</td>
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Registration Form

Please send the signed and scanned copy of this form as a PDF to ppingole@chemistry.iitd.ac.in

Nanostructured Materials for Energy, Environment and Healthcare Applications
(9\textsuperscript{th} – 13\textsuperscript{th} November 2020)

(Please fill the form using block letters)

Name of applicant: ________________________________

Designation:______________________________

Department: ________________________________

Institute/Organization: _____________________________

Address: ________________________________________

____________________________________________________________

E-mail ID: ______________________________ Mobile number: __________

Place: __________

Date: __________

Signature of applicant (with date)

Declaration (Applicable for TEQIP-III participants)

Dr./Prof./Ms/Mr __________________ is a faculty member at____________________ (Institute Name) and is permitted to attend the course on “Nanostructured Materials for Energy, Environment and Healthcare Applications” by IIT Delhi from 9\textsuperscript{th} – 13\textsuperscript{th} November 2020.

Signature of Head (with date & official seal)