

AICTE Sponsored QIP Short Term Course on
Frontiers in materials research: from materials simulation to
emerging applications

Organized by

**The Department of Sciences and
Humanities (Physics)
Indian Institute of Information Technology
Design and Manufacturing, Kancheepuram,
Chennai - 600 127
www.iiitdm.ac.in**

From 21st to 26th March 2022

Coordinators

Dr. Debolina Misra & Dr. Vivek Kumar



ABOUT THE INSTITUTE

Indian Institute of Information Technology Design and Manufacturing (IIITDM), Kancheepuram is an Institution of National importance established in 2007 by the Ministry of Education, Government of India. It is a Centre of Excellence for pursuing design and manufacturing oriented engineering education and research and for promoting the competitive advantage of Indian products in global markets. IIITDM Kancheepuram offers UG and PG programs in Computer Science, Electronics and Communication Engineering, Mechanical Engineering, and Ph.D. programs in core and applied Physics, Mathematics, Engineering and English.

ABOUT THE DEPARTMENT

The Physics stream of the Department of Science and Humanities at IIITDM Kancheepuram consists of a vibrant team of faculty members working in diverse research areas including experimental and theoretical materials science, Photonics and Nuclear physics with the major research focus of the Department being photovoltaics, fuel cells, materials modeling, fiber optics and photonics, solar and thermal energy applications, giant resonances of nuclei, and supersymmetric quantum mechanics. Similar to the other streams in the Department of Sciences and Humanities, IIITDM Kancheepuram, the Physics stream also offers PhD programme in applied and core Physics areas.

IMPORTANT DATES

Last date for applications: 16-03-2022

Intimation of selection: 17-03-2022

Confirmation of participation: 18-03-2022

For further details, please contact:

Dr. Debolina Misra/ Dr. Vivek Kumar

Assistant Professor of Physics,
Indian Institute of Information Technology
Design and Manufacturing (IIITDM)
Kancheepuram, Chennai – 600 127

Tel: +91 - 44 - 2747 6388

E-mail: debolinam@iiitdm.ac.in
vivek@iiitdm.ac.in

**AICTE Sponsored QIP Short Term
Course on
Frontiers in materials research: from
materials simulation to emerging
applications**

21st - 26th March 2022

APPLICATION FORM

Please fill the below Google form:

<https://forms.gle/9kfbfWpZhMaCfHKPA>

(or) Scan the below QR Code:



Eligible teachers are requested to submit the filled in application (Google form) along with the sponsorship certificate in the format given below on or before 16-03-2022.

ABOUT THE COURSE:

INTRODUCTION

This course intends to enrich our understanding of the current trends and recent advancements in materials science, the challenges ahead, the prospective solutions and most importantly the applications and emerging technologies in this field of research. The entire course is divided into theoretical and experimental sessions. The theoretical sessions will engage with the most popular, widely used and vastly accurate theoretical techniques and simulation tools such as first-principles calculations and molecular dynamics simulations. In the experimental sections emphasis is given on the characterization techniques and the advanced experimental procedures for materials design for device fabrications. In addition, the hands-on sessions will be helpful for the participants to have direct experience pertaining to materials design.

COURSE OBJECTIVES

The objective of the proposed short-term course is to give the participants an overview of the ways to design and discover new materials for various device applications, using state-of-the-art theoretical and experimental approaches used in materials science. The sessions will cover the both the theoretical techniques and computational tools required for discovery of new materials, and the advanced experimental and characterization techniques, to help the participants gather fundamental knowledge about different types of materials required for designing and fabricating new devices.

COURSE OVERVIEW

- Materials modelling and transport properties of solids from first-principles calculations
- Theoretical insights on Energy Harvesting Materials
- Molecular Dynamics Simulation
- Materials for flexible electrodes and display
- Semiconductor based materials for Defense devices
- Flexible and Wearable Photonics
- Magnetic materials and their applications
- Electrochromic materials and devices
- Nanoscale devices for emerging technology
- Nanostructure based photovoltaic devices

COURSE DURATION

The course is of one-week duration from 21st to 26th March 2022.

RESOURCE FACULTY

The resource persons are from IITs/ NITs/ other reputed institutions and host institution IIITDM Kancheepuram, Chennai.

ELIGIBILITY

Engineering college teachers from AICTE approved colleges are eligible to apply for the course.

REGISTRATION FEE

There is **no course fee** for the participants.

MODE

The course will be online, and attendance during all the sessions is compulsory. The course link will be sent to shortlisted candidates (*maximum of 100*) by **19-03-2022**.

SPONSORSHIP CERTIFICATE FORMAT

Certified that Dr./Sri./Smt. is a faculty of our Institute and is being sponsored hereby for attending the QIP short term course on “Frontiers in materials research: from materials simulation to emerging applications” be conducted by the Department of Sciences and Humanities (Physics), IIITDM Kancheepuram in online mode from 21st to 26th March 2022.

Signature of Sponsoring Authority

(With date and seal)