



# INDIAN INSTITUTE OF TECHNOLOGY INDORE

Discipline of Metallurgy Engineering And Materials Science

Organizes

**3-Days Active Learning Online Faculty Development Course on  
Advanced Technology For Integrated Computational Materials Engineering Education**

**December 28-30th, 2020**

**Sponsored by Technical Education Quality Improvement Programme (TEQIP)-3, MHRD**

**TEQIP-3**  
Technical Education Quality Improvement Programme

## ABOUT IIT INDORE

Indian Institute of Technology Indore, located in Madhya Pradesh, known as IIT Indore, is an institute of national importance established by the Government of India in 2009. The Discipline of Metallurgy Engineering and Materials Science (MEMS) at IIT Indore was initiated in 2016 with a vision of establishing a center of excellence that will focus on research in multidisciplinary areas of Metallurgy Engineering and Materials Science. The discipline offers the B.Tech, M.Tech and PhD degrees. Recently, IIT Indore debuted with a rank of 351-400 in the Times Higher Education World University Rankings, 2019, 2<sup>nd</sup> among Indian institutes.

## DETAILS COURSE SYLLABUS

Introduction to Integrated Computational Materials Engineering (ICME); Overview of ICME and history; Computer Simulations at Different Time Scales, Multiscale Aspects of Materials, Creating New Materials, Thermodynamics of Materials Engineering, Principles of Engineering Practice, Fundamentals of Materials Science and Engineering, Electronic Structure Theory and Methods, Introduction of First-Principles Methods, Molecular Dynamics (MD), Soft Materials and Corrosion Eng., Material Structures using Finite Element Methods (FEM); Crystal Plasticity Theory: Crystal Plasticity, Introduction to Phase-Field Method and Its Formalisms, understanding of spinodal decomposition, Order-disorder transformation, some examples related to microstructure evolution.

## OBJECTIVES

- i) To provide the participants with a working knowledge of microstructure-property relations and atomistic modeling of nanostructures.
- ii) To provide the participants with the mathematical tools needed for quantitative characterization of microstructure and calculation of effective properties.
- iii) To provide the participants with a working knowledge of the various tools and techniques needed to characterize and design heterogeneous materials using both micromechanics and nano-mechanics techniques.
- iv) To introduce the participants into practical problems of micromechanics and nano-mechanics, and their solutions, through case studies and live projects.

## COURSE FACULTY

- Dr. Srimanta Pakhira (Assistant Professor, IITI)
- Dr. Sumanta Samal (Assistant Professor, IITI)
- Dr. Shailesh I. Kundalwal (Associate Professor, IITI)
- Dr. Mrigendra Dubey (Assistant Professor, IITI)
- Dr. Abhijit Ghosh (Assistant Professor, IITI)
- Dr. Satya Bulusu (Associate Professor, IITI)
- Dr. Bhaskar Mondal (Assistant Professor, IIT Mandi)

## COURSE MODULE

**This is an active learning based course and comprised of lectures, tutorials, and hand-on training/demonstrations .**

## CERTIFICATE

Participants who successfully complete the course will be awarded with a certificate.

## TARGET PARTICIPANTS

This course is tailor made for the students, researchers, and faculty members from any academic background.

## REGISTRATION PROCESS

Interested participants need to submit **online** form or the scan copy of as per format attached through E-mail to: [spakhira@iiti.ac.in](mailto:spakhira@iiti.ac.in). Number of participants are limited to 50 on first come first basis.

## REGISTRATION FEE

- There is **no fee for participants (only faculty members) from TEQIP sponsored colleges/universities/institutes**. The nominations along with the registration forms must be sent through their coordinator to the address below. Email confirmation in advance is suggested. The fee is ₹ **3000 for students/research scholars/research scientists**.
- Non-TEQIP Colleges: The fee is ₹ **3000 for students/research scholars** and ₹ **6000 for faculty**.
- For industry personnel, the fee is ₹ **8000**.

### Online Registration Link:

[https://docs.google.com/forms/d/e/1FAIpQLScviCd-rEUG4FPnN-2D9PxqvKqXjL8wF9ZAfehWoCY9eASL\\_Q/viewform?vc=0&c=0&w=1&flr=0&gxids=7757](https://docs.google.com/forms/d/e/1FAIpQLScviCd-rEUG4FPnN-2D9PxqvKqXjL8wF9ZAfehWoCY9eASL_Q/viewform?vc=0&c=0&w=1&flr=0&gxids=7757)

**REGISTRATION DEADLINE: 20th December, 2020.**

### COURSE COORDINATOR:

**Dr. Srimanta Pakhira, Dr. M. Dubey, Dr. S. Samal and Dr. S. Kundalwal**

Email: [spakhira@iiti.ac.in](mailto:spakhira@iiti.ac.in)

Web site: <https://spakhirafsu.wixsite.com/acmslab>

## MODE OF PAYMENT

### Via NEFT:

The payment can be made By Demand Draft: Demand Draft should be drawn in favour of “**Registrar, IIT Indore**”, payable at Indore **OR** by NEFT Transfer: Registration fee can be paid through NEFT. Transfer of the amount can be done to the A/c number given below:

**Name of the Beneficiary:** Registrar, IIT Indore

**Name of Bank:** Canara Bank

**Branch:** IIT Indore, Simrol Campus

**Account No.:** 1476101027440

**Bank IFS Code:** CNRB0006223

The signed registration form must be sent through their coordinator to the address below. Email confirmation in advance is suggested.

Evidence of payment should be emailed in advance to confirm the participation (Participant from TEQIP sponsored colleges are exempted)

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**TEQIP-3**  
Technical Education Quality Improvement Programme

1.	<b>Name of the Person:</b>	
2.	<b>Designation:</b>	
3.	<b>Academic Qualification:</b>	
4.	<b>Name of the Institution/Organization:</b>	
5.	<b>Address for Communication:</b>	
6.	<b>Phone:</b>	
7.	<b>Email:</b>	
8.	<b>Payment Details:</b>	
9.	<b>Amount:</b>	
10.	<b>Payment Ref. No:</b>	
11.	<b>Transaction Data:</b>	
12.	<b>Bank etc. Details:</b>	
<b>Place:</b>		<b>Date:</b>
<b>Signature of Participant:</b>		
<b>Approval /Permission from the Institution/Organization:</b> We approve the above application as participant for the above short course, which is being organized by IIT Indore on 28 <sup>th</sup> to 30 <sup>th</sup> December, 2020.		
<b>Authorized Signature</b>		<b>Institute/Organization seal</b>