

APPLICATION FORM

A Short Course on Structure and Characterization of Materials

December 22-26, 2014 IIT Kanpur

Name: _____

Title/Position: _____

Organization: _____

Mailing Address: _____

Email: _____

Fax: _____

Phone(s): _____

Areas of interest: _____

Accommodation Required: Yes / No

Details of enclosed Demand Draft:

No. _____ Dated: _____ Amount(Rs): _____

Issuing Bank: _____

Date

Participant Signature

For further information contact

Course Coordinators:

Dr. Ashish Garg (email: ashishg@iitk.ac.in)

Dr. Nilesh Gurao (email: npgurao@iitk.ac.in)

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Indian Institute of Technology Kanpur
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website: <http://www.iitk.ac.in/~ashishg/scm2014>

A SHORT COURSE

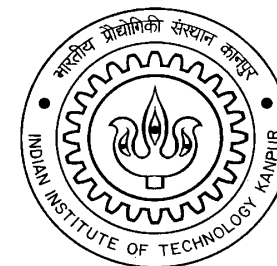
ON

Structure and Characterization of Materials

December 22-26, 2014

Venue:

Visitor's Hostel
Indian Institute of Technology Kanpur



Organized by:
Dept. of Materials Science & Engineering
Indian Institute of Technology Kanpur

Supported by
Centre for Development of Technical Education,
IIT Kanpur &
TEQIP Programme, IIT Kanpur-MHRD Initiative

COURSE OBJECTIVES

The course is designed to demonstrate the relevance and importance of key materials characterization methods to the teachers and industrial participants and to familiarize them with the technical advances that have taken over the years. The course will focus on the structure-property correlations in metals as well as nonmetals and how these could be unraveled by the use of simple characterization methods such as optical and scanning electron microscopy, x-ray diffraction and Raman spectroscopy. In this course, we will provide a brief introduction to the structure of materials and its relevance to the properties and hence applications followed by a short description of diffraction, imaging, and spectroscopy principles. Then, we will discuss various characterization techniques including optical and scanning electron microscopy with elemental analysis, scanning probe microscopy, X-ray and electron diffraction, Raman and Fourier Transform Infrared spectroscopy. It will also explore techniques for quantifying microstructures (using image processing and stereology) observed using various microscopy methods.

The course will not only provide a theoretical background but will also provide a hands-on experience to data collection and data analysis, complemented by lectures and lab sessions.

Who should attend this course?

The course is targeted for the practicing engineers to acquire a basic theoretical background for the characterization techniques for metals and nonmetals, particularly those of advances in analysis as well as technology and will hopefully enable them to better understand the practical aspects of characterization methods. For the researcher and teachers, the course is expected to provide an appreciation of the link between the theoretical principles and practical applications with a modern perspective.

SCOPE

- Introduction to Structure of Metals and Non-metals
- Importance of Materials Characterization
- Principles of Imaging, Microscopy and Image Processing
- X-ray Diffraction: Principles and Applications
- Phase Identification
- Stress and Texture Analysis
- X-ray Fluorescence and Elemental Analysis
- Advanced Applications of X-ray Diffraction
- Scanning Electron Microscopy and EBSD
- Atomic Force Microscopy and Applications
- Raman and FTIR spectroscopy for Materials Characterization

APPLICATION PROCEDURE

Application in the attached form should be sent to the coordinators along with the registration fee. Accommodation will be booked in the IIT Kanpur campus. The last date for receiving the application is November 30th, 2014.

REGISTRATION FEES

1. Participants from Industry and R&D Organizations: Rs. 40,000/- per participant
2. Participants from Teaching Institutes/ Research Labs: Rs. 20,000/- per participant

Registration fee includes accommodation at IIT Kanpur, food and local transport. Concession in the registration fee can be offered to selected candidates based on the details of their request. This will be done on the first come first serve basis and a maximum of 5 concessions will be made.

If you are from a TEQIP affiliated institute, then you can attend the course free of cost. Please contact Ms. Shirolly Anand for details (shirolly@iitk.ac.in).

Payment must be made by A/c payee demand draft in favour of "SCM-2014".

Attention: Dr. Ashish Garg
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