

TEQIP-III SPONSORED SHORT-TERM COURSE

Crystallography for Materials Science

Indian Institute of Technology Delhi

24-28 June 2019



Coordinator

Prof. Rajesh Prasad

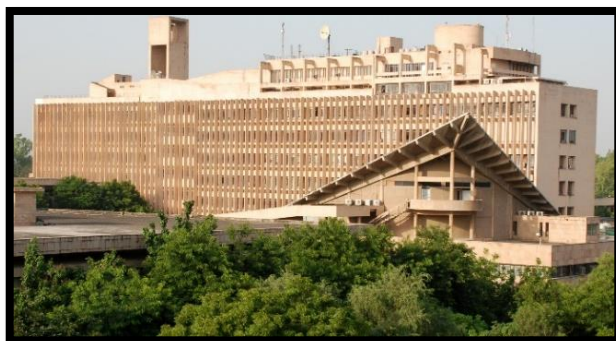
Department of Materials Science and Engineering

Indian Institute of Technology Delhi

Hauz Khas, New Delhi -110016

IIT Delhi

Established in 1961, Indian Institute of Technology Delhi is one of the premier educational institutions in the country and counted among the top institutions in the world. Situated in the National Capital, IIT Delhi has been instrumental in providing solutions to technological and societal problems through innovative academic and research activities. IIT Delhi has been consistently placed among top academic universities around the globe. Recently, IIT Delhi has been awarded the status of “Institution of Eminence” by Government of India.



Course Contents

- Concept of lattice, motif and crystal. Distinction between lattice and crystal. Classification of lattices in 7 crystal systems and 14 Bravais lattices.
- Concept of symmetry and its types: Rotation axes, rotoinversion axes, mirror planes, glide planes and screw axes, point and space groups.
- Reciprocal lattice.
- Crystallographic computation: Structure matrix and metric tensor. Normal and interplanar spacing of a set of crystallographic planes. Volume of a unit cell.

Learning Outcomes

- Appreciate the role of symmetry as a central concept in crystallography.
- Ability to construct and interpret stereographic projection and use them to represent point group symmetry.
- Ability to read and interpret space group tables in International Tables of Crystallography.
- Make use of reciprocal lattice for crystallographic computations and interpretation of electron diffraction patterns.

Scope of the Course

The aim of the course is to introduce basic concepts of crystallography to participants with materials science, metallurgy, physics and chemistry backgrounds.

Target Audience

The course is designed for faculty members and Ph.D. students in TEQIP-III institutes. Participants (students, faculty members and industry employees) from non TEQIP-III institutions are also welcome to register by paying fees as per the details given below.

Faculty

The following faculty members will deliver lecture during the course:

Prof. S. Lele, Department of Metallurgical Engineering, IIT-BHU, Varanasi.

Prof. Rajesh Prasad, Department of Materials Science and Engineering, IIT Delhi.

Lab sessions, Tutorials and Lab Tour

Exhaustive lab sessions will cover the practical aspects of the crystallography. 3D models and hands on sessions also be conducted.

Lab tours will showcase the advanced equipment present in the institute related to crystallography.

Travel

3AC fare and internal travel from Institute to IIT Delhi campus will be provided to TEQIP-III participants only after producing the tickets and bills.

Accommodation

Boarding and lodging will be arranged for the selected TEQIP-III participants in IIT-Delhi Guest House/Hostel/Hotel on sharing basis. However, due to a limited number of rooms in the guest house the allotment will be on first-come, first-served basis.

Course Coordinator

Prof. R. Prasad

Department of Materials Science and Engineering

Indian Institute of Technology Delhi

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Registration

No registration fees for TEQIP-III participants.

For Non-TEQIP III participants the registration fees mandatory for participation.

- INR 10,000/- + GST – Research Scholars
- INR 15,000/- + GST – Faculty
- INR 30,000/- + GST – Industry participants
- Accommodation will be provided on request and subject to availability. Cost of accommodation will be borne by the participant.

Interested candidates are requested to fill the particulars requested in the registration form attached with the brochure. The soft copy of the completed registration form should be sent by email to teqip.crystal2019@gmail.com with the title of the course “Crystallography for Materials Science” as the subject.

For further information related to the course or for accommodation enquiries, please contact us at teqip.crystal2019@gmail.com.

Registration Form

Crystallography for Materials Science

24 – 28, June 2019

Name of applicant:

Designation:

Highest qualification:
.....

Date of birth (DD/MM/YYYY):

Gender: Female / Male.....

Institute/ Organization name with complete address -
.....

E-mail ID :

Mobile number:

Do you need accommodation: Yes / No

Reason for attending the course:

AFFIX YOUR
RECENT
PASSPORT
SIZE
PHOTOGRAPH

I,, certify that above information provided by me are correct.

(Signature of applicant with date)

Dr./Prof./Ms/Mr..... is an employee/ a research scholar of my organisation/ institute and is permitted to attend the course on “Crystallography for Materials Science” at IIT Delhi from 24th June to 28th June 2019.

Signature of head with date and seal

Date -