Whom will the course benefit:
The course will benefit college teachers in the disciplines of metallurgy, material science, physics and chemistry who are interested in x-ray diffraction and its applications. This would also benefit engineers in the segments of manufacturing and quality control of materials.

Course Objectives:
To expose the faculty members and practicing engineers to the fundamentals and applications of x-ray diffraction.

Course Contents:
- Concepts of crystallographic symmetry, lattice planes, directions, Miller indices of planes; description of (simple) crystal structures.
- Basics of diffraction, Bragg's law, Debye Scherrer and Bragg-Brentano para-focusing powder diffraction geometry.
- X-rays generation from laboratory and synchrotron sources.
- Monochromatization of x-rays, detection of x-rays.
- Scattering of x-rays by crystals, atomic scattering factor, structure factor, factors influencing Bragg intensity in powder diffraction patterns.

Applications:
- Quantitative estimation of phase fractions, estimation of crystallite size and strain
- Estimation of residual stresses

Course Organization:
The course will consist of lectures by IISc faculty.

Eligibility:
The course is meant for faculty of AICTE – recognized engineering colleges. Selected teachers will be paid TA at actual subject to the limit of Three tier AC train/bus fare by the shortest route from the place of work to Bengaluru and back. However, the maximum TA payable is Rs.3000/-. They will be provided with a daily allowance of Rs.500/- per day (for 5 days only) towards boarding and lodging as per QIP rules, and will be supplied with the course materials. The lodging charges will be Rs.300/- per day. Local participants will be paid DA @ Rs.150/- per day for 5 days.

In addition, a few seats are available on payment basis for non-sponsored (self-support) teachers, scientists from R&D organisations, practicing engineers from industry and others interested in this course. A course fee of Rs.10,000/- will be charged to these participants. This will entitle them to participate in the course and receive the course material. Single room accommodation is available on the Institute campus at the Hoysala Guest House. The participants have to request in advance along with the registration form for such accommodation. The lodging charges will be Rs.1000/- per day, for self-sponsored college teachers and Rs.1500/- per day for other participants, subject to availability of accommodation

Applications:
- Quantitative estimation of phase fractions, estimation of crystallite size and strain
- Estimation of residual stresses
QIP Short Term Course
On
“Introduction and Application of X-Ray Diffraction”
6 – 10 February, 2017

To reach on or before: 06th January, 2017

The Officer-in-Charge,
Centre for Continuing Education
Indian Institute of Science
Bengaluru - 560 012
Telephone: 080-23600911, 22932055/2491
Email: so@cce.iisc.ernet.in/
office@cce.iisc.ernet.in

Intending participants may use the attached application form or a xerox copy of the same. Applicants from AICTE recognized colleges are required to submit their applications sponsored by their colleges.

Non-sponsored (self-support) teacher applicants/others should send their application along with a DD for Rs.10,000/- drawn in favour of “Registrar, Indian Institute of Science, Bengaluru - 560012” payable at Bengaluru.

Deadlines:

Receiving completed application: 06th
January, 2017

Intimation of selection: 12th January, 2017

Sponsored by
AICTE, NEW DELHI

Prof. Rajeev Ranjan
&
Prof. Satyam Suwas
Dept. of Materials Engineering

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Indian Institute of Science
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