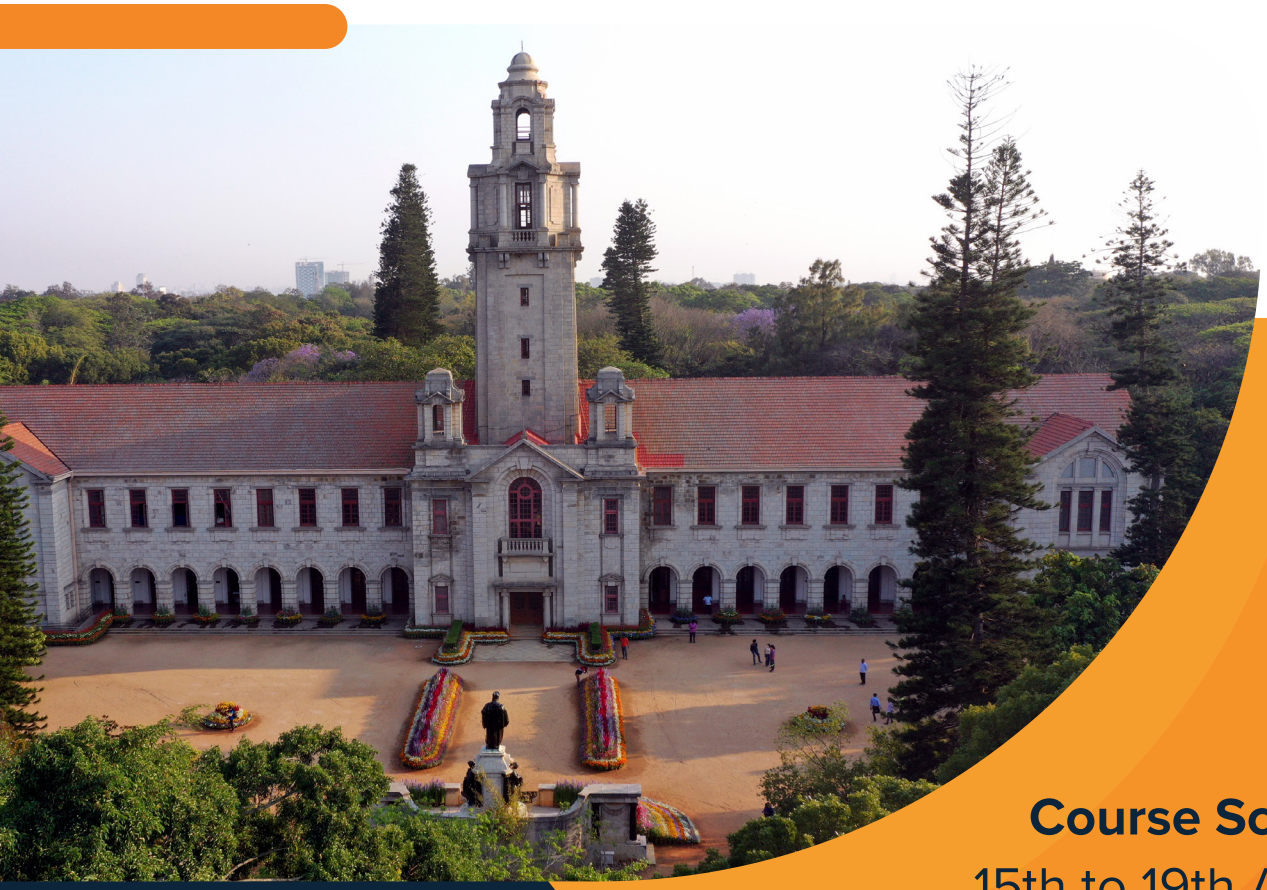
Materials Characterisation and Quality Control for Industry Professionals



Course Schedule

15th to 19th April, 2024

Course Mode: Offline

(Classes will be held in IISc Campus)

Faculty Member

Prof. Bikramjit Basu

Materials Research Centre

Indian Institute of Science (IISc) Bangalore

Course Fee

Rs. 15,000/- per day per person (plus 18% GST)

Click here for enrolling

OR

Scan here to apply

Who can apply?

Diploma in any Engineering discipline

| Bachelor in Materials Manufacturing Science

Contact us

Centre for Continuing Education (CCE),

Indian Institute of Science (IISc) Bangalore

Bengaluru 560 012, Karnataka, Phone: 910802293 2055/2491/2247,

E-Mail: office.cce@iisc.ac.in

Course Objectives

Classroom lectures, practice sessions, and Laboratory demonstrations on the following topics:

- Introduction - Quality control and industry case studies
- Understanding the Theory of X-ray Diffraction (XRD), with a focus on quantitative phase analysis
- Chemical composition analysis using Inductively Coupled Plasma (ICP) techniques
- Electron Microscopy (SEM-EDS, EPMA, TEM),
- Micro-computed tomography (micro-CT) and atom probe tomography (APT), covering fundamental principles and working techniques for all these electron microscopy techniques.
- Spectroscopic techniques (UV-Vis, FT-IR)
- Thermal analysis techniques (DSC, DTA/TGA)
- Mechanical characterization (Tensile and compression)
- Additive Manufacturing of Materials
- Visit to 3D extrusion printer (Avay Bisociences), 3D Bioplotter (Envisiontec), Directed Energy Deposition, DED facility and center for excellence on Additive manufacturing facility at IISc
- Surface property analysis
- Biocompatibility assessment: in vitro and in vivo testing

Note: A bound copy of the class notes and relevant documents will be provided to each participant. Lunch and refreshments will be provided during all the days.