

Hands-on training in Scanning Electron Microscopy (SEM) and X-ray Diffractometer (XRD)

About Us:

The “Centre for Incubation, Innovation, Research and Consultancy (CIIRC[®]), is a joint initiative between Sri Sringeri Sharada Peetham, Sringeri and Jyothy Institute of Technology (JIT), Bengaluru. The primary objective of CIIRC[®] is to provide a single platform for the diverse components of science, engineering, business orientation and skill development with emphasis on innovation, incubation and research leading to successful entrepreneurship. The Centre is equipped with several sophisticated instruments, including **SEM (Hitachi S 3500) and XRD (Bruker, D8 ADVANCE ECO)**. It has a qualified group of 70 faculty-researchers with a broad array of expertise in science and technology. For more details, kindly log on to <http://ciirc.res.in/>

Preamble of the Program:

Sharing knowledge has helped mankind to survive and evolve since time immemorial. As Today’s world is driven by knowledge based economies, sharing knowledge has received much attention than ever before. Hence, the current program, combining theoretical and practical skills, has been offered with a motto “Keeping knowledge erodes power. Sharing is the fuel to your growth engine”.

About Techniques:

XRD is the most sought-after, advanced, non-destructive technique, for materials investigation, characterization and quality control. It is an indispensable technique for both qualitative and quantitative phase analysis, crystallography, and micro-structure analysis. SEM coupled with EDS (Energy dispersive Spectrometer) is one of the most powerful and commonly used techniques for the study of surface morphology and determination of elemental composition of materials. Typical materials analyzed by these two techniques include metal & alloys, minerals, polymers, catalysts, composites, pharmaceuticals, thin-film coatings, and ceramics.

About Resource Persons:



Narendra Reddy graduated from the University of Nebraska-Lincoln, USA with a Ph.D in 2006 and worked as Research Professor at the University of Nebraska before returning to India. On returning to India, he was awarded the prestigious Ramalingaswamy Fellowship from Govt. of India and is currently working as a Professor at the centre. He has published over one hundred research papers and has more than 4,000 citations. His areas of research include developing sustainable and green materials & products from agricultural residues, value addition to biofuel coproducts, promoting green technologies and substituting petroleum based products with bio products. His patented technology on extracting natural fibers from agricultural residues has been licensed for commercial production. He is our SEM expert.



Umananda Bhatta obtained his Ph. D in Physics from Institute of Physics (IOP), Bhubaneswar affiliated to Homi Bhabha National Institute (DAE undertaking). Later, he

undertook postdoctoral research at the Department of Materials and Engineering, University of Sheffield from 2010 to 2013. He is a renowned expert in several techniques including Advanced Electron Microscopy, X-ray diffraction, XPS, and Ion Beam Synthesis. He has more than forty five publications with more than 500 citations. Recently he has been the recipient of DST Young Scientist Research Grant. Currently he is working as an Associate Professor at the centre and is our XRD expert.

Program Schedule:

Sl No	Time	Details
1.	9.00 am to 9.10 am	Arrival and welcome
2.	9.15 am to 10.00 am	Power Point Presentation about basic theory and instrumentation (XRD)
3.	10.00 am to 10.15 am	Tea break
4.	10.15 am to 11.00 am	Power Point Presentation about basic theory and instrumentation (SEM)
5.	11.00 am to 1.30 pm	Practical session: Instrumental operation, Sample preparation, Method development, Running samples, Data analysis & interpretation (Attendees will be divided into two groups to ensure an ideal learning environment)
6.	1.30 pm to 2.15 pm	Lunch break
7.	2.15 pm to 3.00 pm	Visit to various CIIRC labs
8.	3.00 pm to 4.15	Continuation of practical session with group discussion and case studies of attendees' samples, if any
9.	4.15 pm to 4.30 pm	Tea break and networking
10.	4.30 pm to 4.45 pm	Distribution of certificates, group photo and departure

Who should attend?

Academic as well as industry researchers from different domains of materials science, those are keen on obtaining first-hand experience in SEM and XRD techniques.

How to apply?

Kindly follow the link to register yourself; <https://goo.gl/forms/6dTkQVmlnI4sLdzpl>

Terms and Conditions:

1. Registration fee is Rs. 1500 (One thousand Five hundred rupees only) per person, including 18% GST. This non-refundable fee also covers a lunch, high tea, a note book, a pen, and the certificate
2. Participants need to make their own transportation arrangement
3. Number of participants is limited to minimum 20 and maximum 24 on first-come first-served basis. After the registration, you will get an e-mail requesting to arrange the payment of fee. Registration will be confirmed only after the payment.
4. CIIRC reserves the rights of final decision in any case of disputes

If you require any further information, feel free to contact Dr. L N Bhatta on +91 63601 57397 or at sif@ciirc.jyothyit.ac.in