Skill Development and Hands on Training on Electron Microscopic techniques

on 20th-22nd August 2025

(Only for Government College)

Organized by

Department of Materials Science, School of Chemistry
Madurai Kamaraj University, Madurai- 625 021, Tamil Nadu, India.

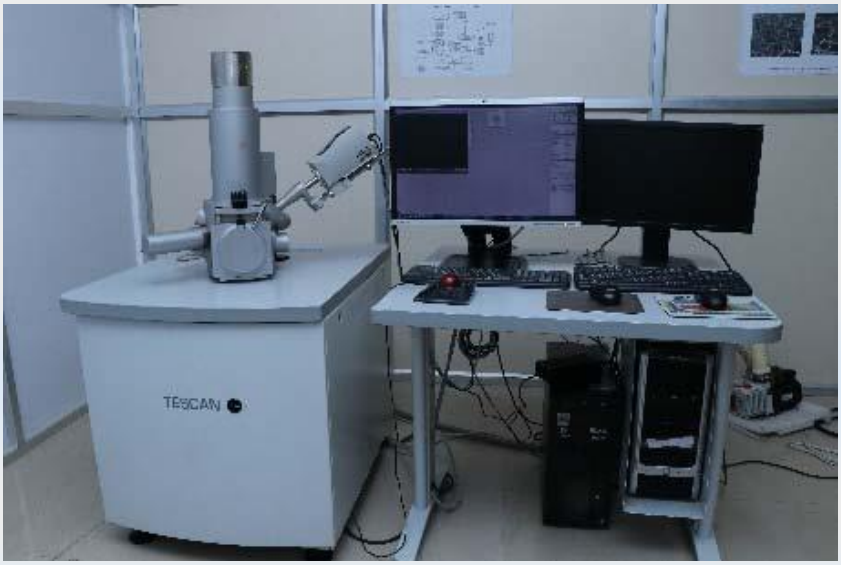
Sponsored by RUSA-MKU

Transmission Electron Microscope (TEM)

The FEI Tecnai G^2 20 S-TWIN TEM is designed to offer an imaging and analysis solution for life sciences, materials sciences, nanotechnology, and the semiconductor and data storage industries. A wide range of functionality and techniques is available and can be combined on the Tecnai G2 20 S-TWIN TEM, to name a few: high contrast imaging, HR-TEM and SAED, using embedded detectors and components like BF/DF, CCD and corrected optics.

The TESCAN VEGA3 SBH is a versatile tungsten thermionic emission SEM system intended for both high- and low vacuum operations. VEGA3 is equipped with modern electron optics.

High tension: 30 kV
Electron source: Tungsten filament
Resolution: 2 nm
Detectors: SE and BSE
Magnification Range: up to 1,50,000
EDS Manufacture: EDAX



Scanning Electron Microscope (SEM)

About the Program

The Hands-on Training on Electron Microscopic Techniques is designed to provide in-depth theoretical knowledge and practical exposure to electron microscopy tools such as Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), and associated analytical techniques like Energy-Dispersive X-ray Spectroscopy (EDX) and Selected Area Electron Diffraction (SAED). This program will bridge the gap

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between conceptual understanding and laboratory implementation, empowering participants to confidently operate advanced microscopy instruments and interpret microstructural data.

Objective of the Electron Microscopic techniques

- Participants will gain **practical experience in sample preparation** for electron microscopy.
- Develop the ability to **operate SEM and TEM instruments** for imaging and material characterization.
- Acquire skills in **microstructure interpretation**, including particle size, morphology, crystallinity, and elemental analysis. To understand overview of Image J software and image processing.
- Understand the **applications of electron microscopy in materials science, nanotechnology, and life sciences**.
- Build a foundation for **independent research** using advanced microscopic techniques.

Outcome of the Training

Upon completion of the training program, participants will be equipped with the skills to independently prepare samples and operate advanced electron microscopy instruments such as SEM and TEM. They will gain the ability to analyse and interpret microstructural data, including particle size, morphology, crystallinity, and elemental composition using techniques like EDX and SAED. This hands-on experience will enhance their understanding of electron microscopy applications in materials science, nanotechnology, and life sciences, and prepare them for research or technical roles requiring advanced microscopy expertise.

Madurai Kamaraj University established the **Department of Materials Science** under the School of Chemistry to promote advanced education and research in emerging areas of material technologies. Recognizing the growing importance of nanoscience, energy materials, thin films, and smart materials, the department was set up to provide focused training and interdisciplinary research opportunities. With strong support from national funding agencies like **UGC, DST, SERB, RUSA, ANRF, CMRG, DRDO and CSIR.**

Who can apply?

Final year B.Sc. and M.Sc. Students, Research scholars from Government College only who are interested in Thin Film Coating Technologies can apply for this training programme.

There is **no registration fee.** The **last date to register is 17.08.2025**, and only **40 seats** are available, making early registration essential. Participants will be **notified of their selection via email on 18.08.2025**. During the program, **working lunch will be provided**, while participants are expected to **arrange their own accommodation**. Upon successful completion of the training, all attendees will be awarded a **Certificate of Participation**.

For registration:

Form link: https://forms.gle/WXvV9u6rJSFL3Js6A

For further information please contact:
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Register Here