

Scanning Electron Microscopy Centre



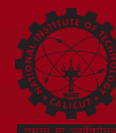
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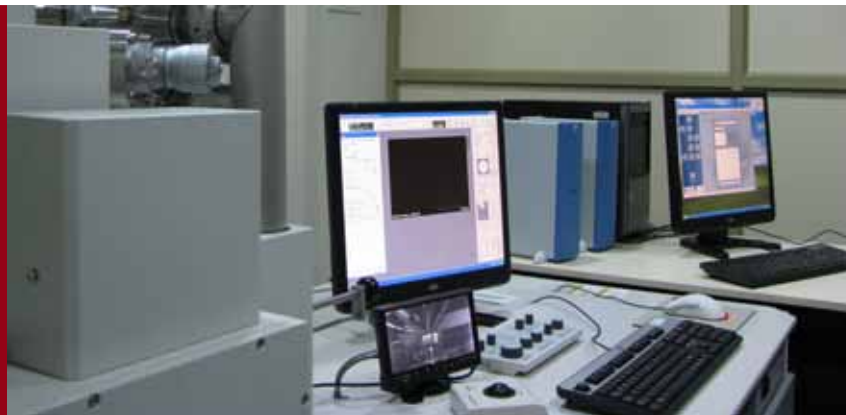
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National Institute of Technology Calicut
Kozhikode, Kerala 673601



Set in a picturesque landscape at the foothills of the Western Ghats, National Institute of Technology Calicut (NITC) is located about 22 kilometers north-east of Calicut City. National Institute of Technology Calicut is a Technical Institution of national importance. NITC is reputed for its top-rated standing among educational institutions in the country, up-to date research in cutting-edge technologies, and its excellent infrastructural facilities. There are various sophisticated facilities in the institute for materials characterization, such as Differential Scanning Calorimetry, Thermo-Gravimetric Analysis, Fourier-Transform Infrared Spectrometer, Metallurgical Microscope etc. NITC has recently commissioned a new high-end Scanning Electron Microscopy Centre. The capabilities of this centre are open for consultancy services also.



SEM CENTRE

The centre is equipped with Hitachi SU6600 Variable Pressure Field Emission Scanning Electron Microscope (FESEM).

THE MAIN FEATURES OF SU 6600-FESEM

- Electron gun: Tungsten Schottky emission electron source
- Resolution: 1.2 nm/30 kV, 3.0 nm/1 kV
- Probe current: 1pA~200nA
- Specimen chamber pressure : 10^{-4} Pa (high vacuum), 10~300Pa (low vacuum)
- Specimen Size: Max 150 mm dia.×40 mm H
- Magnification: 500,000 x

IMAGING TECHNIQUES

Secondary Electron Imaging (SE)
 Backscattered Electron Imaging (BSE)
 Environmental Secondary Electron Detector (ESED)
 Energy Dispersive Spectroscopy (Horiba, EMAX, 137 eV) For analysis, mapping & Point ID

The ESED mode allows the operator to change vacuum conditions in the sample chamber from high vacuum to low vacuum. This also allows imaging of non-conducting samples without conductive coating. It is also equipped with specimen exchange device which helps in reducing the time taken to build vacuum.



OTHER FACILITIES

Quantamix Capsule Kit for wet samples including suspensions, emulsions, creams, cells and tissues

Ion sputter coating unit for carbon & gold for non-conducting samples

CAPABILITIES AND PROGRAMS

Characterization of samples for applications including

Nanoscience and Technology
 Materials Processing
 Biosciences and Medical Applications
 Polymers and Ceramics
 Alloys and Gels

Hands-on SEM training programs

The institute will be launching hands-on training programs and workshops on the applications of Scanning Electron Microscopy periodically.