




INSTRUMENTAL FACILITIES

The following Instrumental facilities are provided by the CIC, Madurai Kamaraj University

<p>1</p>	<p>High-Resolution Transmission Electron Microscope (HR-TEM)</p> <p>The FEI Tecnai G² 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.</p> <p>Contact Prof. S. Murugesan, School of Chemistry Dr. B. Ashok Kumar, Assoc. Prof. School of Biotechnology</p>	 <p>Essential specification: High tension: 200 kV Electron source: LaB₆ or W emitter TEM point resolution: 0.24 nm; Line resolution: 0.14 nm; Min focus step: 1.5 nm TEM magnification range: 25X – 1030 kX</p>
<p>2.</p>	<p>Scanning Electron Microscope with EDS Analyzer</p> <p>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.</p> <p>Manufacturer: TSCAN (Floor Model) High tension: 30 kV Electron source: W filament; Resolution: 2 nm Detectors: SE and BSE Magnification Range: up to 1,50,000X EDS Manufacture: EDAX</p> <p>Contact: Dr. P. Suresh, Asst. Prof, School of Chemistry Dr. J. Annaraj, Asst. Prof. School of Chemistry</p>	
<p>3.</p>	<p>Simultaneous Thermal Analyser: Thermo Gravimetric analyser with Differential Scanning Colorimetry (TG-DSC)</p> <p>Manufacturer : Perkin-Elmer Temperature Range : 50 °C to 1300 °C Heating Rate : 2 °C/min. to 30 °C/min Balance resolution : 0.2 µg Atmosphere : Air, N₂, Argon Temperature accuracy: ±0.5 °C Calorimetric accuracy : ±5% Samples must be non-toxic, non-corrosive, and non-explosive</p> <p>Contact: Dr. A. Siva, Asst. Prof., School of Chemistry</p>	

<p>4. UV-vis. Spectrophotometer with Diffused Reflectance (DRS)</p> <p>Make and model: Shimadzu 2550 with ISR 2200 Wavelength range: 200 to 800 nm Band width: variable bandwidth (0.2 to 4 nm)</p> <p>Contact: Dr. R. Ranjith Kumar. Asst. Prof., School of Chemistry Dr. A. Dhakshinamoorthy. Asst. Prof. School of Chem.</p>	
<p>5. Spectrofluorometer</p> <p>Manufacture: Horiba Emission detection wavelength : 185-850 nm</p> <p>Contact: Dr. R. Ranjith Kumar. Asst. Prof., School of Chemistry Dr. A. Dhakshinamoorthy. Asst. Prof. School of Chem.</p>	
<p>6. Solar Simulator & IPCE System</p> <p>Solar simulator simulate 1 sun intensity AM 1.5 solar spectrum in the laboratory. The irradiance area is 50 cm X 50 cm. I-V measurement system coupled with this solar simulator measures the photo-voltage and photocurrent characteristics of the newly fabricated solar cells by LSV mode. IPCE system is useful to measure the incident photon to current efficiency of the solar cells.</p> <p>Solar simulator make: Photo Emission Technology IPCE System make: Newport, Oriel QEPVSI-B</p> <p>Contact: Dr. G. Gnana Kumar, Asst. Prof., School of Chemistry Dr. M. Jeyanthinath, Asst. Prof. School of Chem.</p>	
<p>7 Theoretical and simulations studies: VASP/Gaussian/Schrodinger softwares installed In high performance computing servers / GPU servers.</p> <p>*Note: This facility is available only to the researchers from Madurai Kamaraj University</p>	