About STUTI:

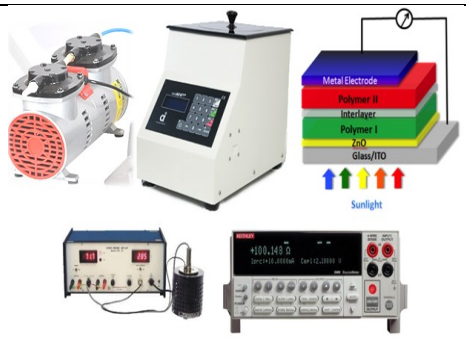
The Scheme 'Synergistic Training program Utilizing the Scientific and Technological Infrastructure' (STUTI) is intended to build human resource and its knowledge capacity through open access S&T Infrastructure across the country. As a complement to the various schemes of DST funding for expansion of R&D Infrastructure at academic institutions, STUTI scheme envisions a hands-on training program and sensitization of the state-of-the-art equipment as well as towards sharing while ensuring transparent access of S&T facilities.

Instruments covered for training:

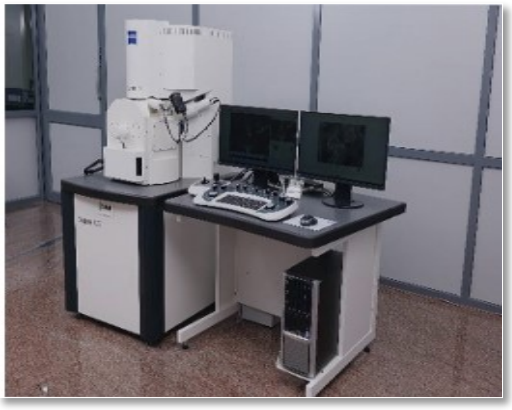
• **Scanning Electron Microscopy (FESEM)**	• **Differential Scanning Calorimeter (DSC)**
• **Thermogravimetry Differential Thermal Analysis (TG/DTA)**	• **Polarizing Optical Microscope (POM)**
• **Ultraviolet Visible Spectroscopy (UV)**	• **Impedance Analyzer (IA)**
• **Cyclic Voltammetry work station (CV)**	• **FT-IR Spectroscopy (FT-IR)**
• **Spectro-Fluorometer (PL)**	• **Optoelectronic device fabrication**
• **High/Fast performance Liquid Chromatography (HPLC/FPLC)**	• **Density Functional Theory (DFT)**

Optoelectronic device fabrication

Make : APEX, Mumbai
Model : SPIN NXG-P1A
Applications: Spin Coating instrument, is used prepare the thin film, fabrication of sensors, Diode and Solar cell film. Keithley instrument is used analysis the I-V characteristics.



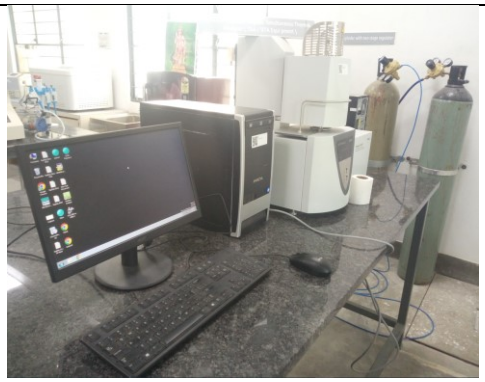
Field Emission Scanning Electron Microscope (FE SEM)



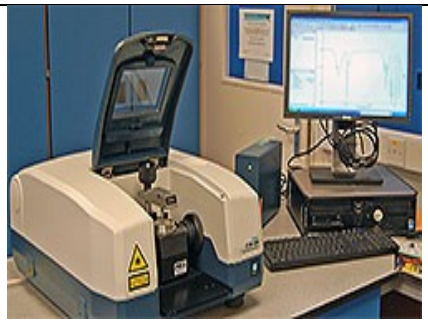
Make : German
Model : Carl Zeiss- Sigma 300
Applications : FE SEM is widely used for the imaging and characterization in material science, geological and environmental sciences. It is used for studying the sample's surface topography, chemical composition etc. including semiconductor device cross section analyses for gate widths, gate oxides, film thicknesses, and construction details.

Thermogravimetry Differential Thermal Analysis (TG/DTA)

Make : Milton, Mumbai
Model : SLEC061001MS
Applications : TG-DTA is a powerful technique for the measurement of thermal stability of materials including polymers. In this method, changes in the weight of a specimen are measured while its temperature is increased. Moisture and volatile contents of a sample can be measured by TGA.



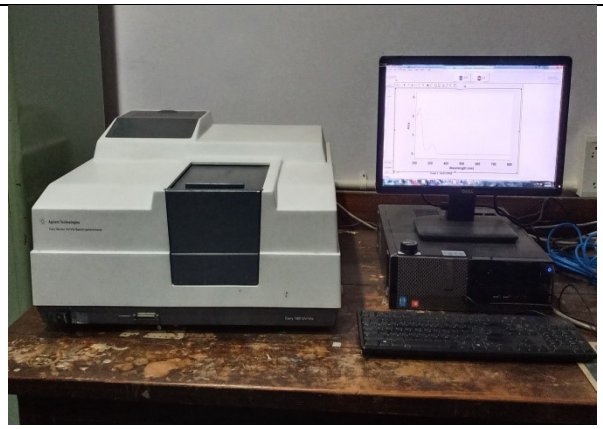
Fourier transform infrared Spectroscopy (FT-IR)



Make : Bruker, Japan
Model : Alpha II
Applications : FTIR is a technique used for the analysis of chemical compounds. It is used to identify and quantify the functional groups present in a sample, as well as to determine its molecular structure and composition.

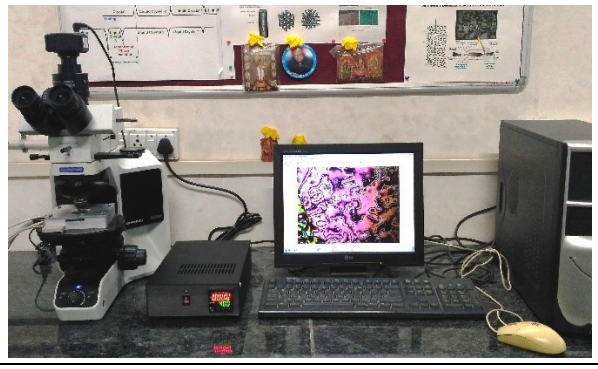
UV-Vis-NIR Spectrometer (UV Vis)

Make : Agilent Technologies
Model : Carry 5000
Applications : UV-Vis Spectrometer is a versatile analytical instrument that is used to measure the absorbance of light in the ultraviolet, visible, and near-infrared regions of the electromagnetic spectrum. It is commonly used in various fields such as chemistry, physics, biology, medicine, environmental science, and materials science.

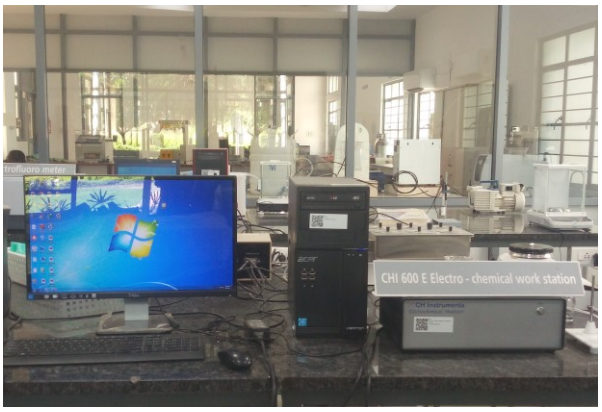


Polarizing Optical Microscope (POM)

Make : Olympus, Japan
Model : BX53M
Applications : POM is used to observe and analyze the optical properties of materials, such as their birefringence, anisotropy, and optical activity. It is commonly used in geology, materials science, and biology.



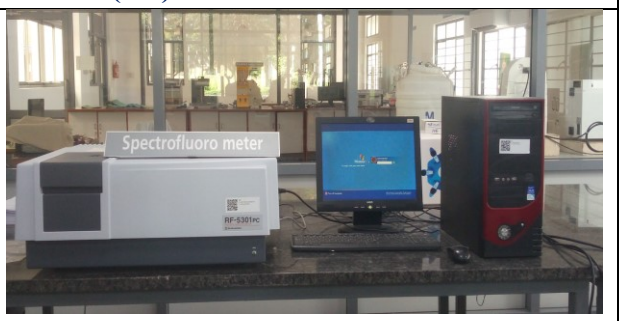
Cyclic Voltammerty work station (CV)



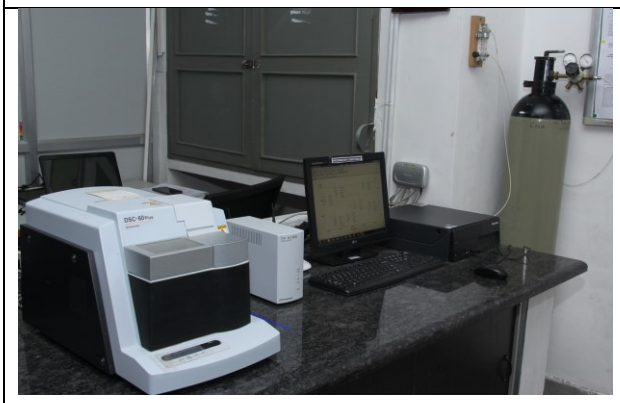
Make : Japan
Model : CHI 600 series
Applications : CV is a technique used to study the electrochemical behavior of materials by measuring current as a function of applied voltage. It is widely used in electrochemistry, materials science, and analytical chemistry for the characterization of redox reactions, determination of electrochemical kinetics, and investigation of electrochemical properties of materials.

Spectro-Fluorometer (PL)

Make : Shimalzu, USA
Model : RF 5301PC
Applications : It is a widely accepted and powerful technique that is used for a variety of environmental, industrial, medical diagnostics, DNA sequencing, forensics, genetic analysis, and biotechnology applications. It is a valuable analytical tool for both quantitative and qualitative analysis.



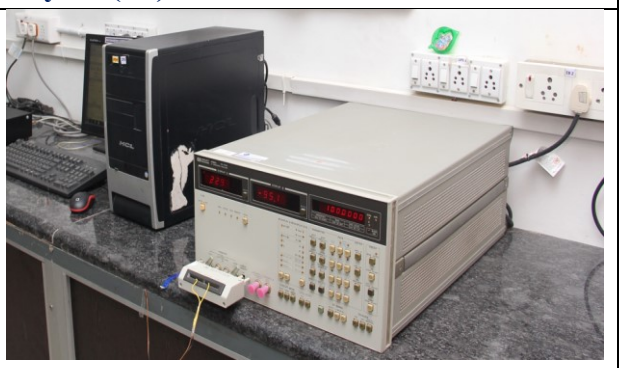
Differential Scanning Calorimeter (DSC)



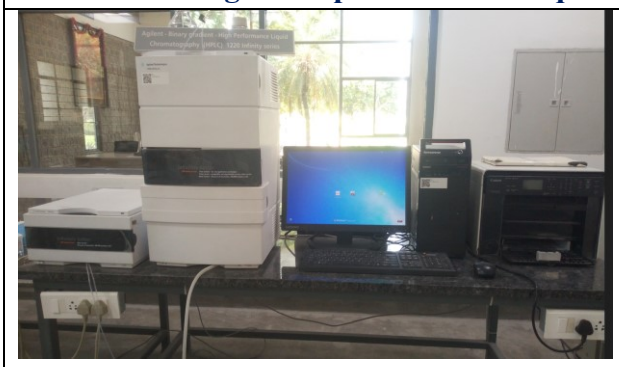
Make : **Shimalzu, USA**
Model : **DSC 60 plus**
Applications : DSC is a thermal analyzer which is used to measure the difference in heat absorbed or released by a sample and a reference material as a function of temperature or time. It is commonly used to study the thermal behavior of polymers, pharmaceuticals, foods, and other materials.

Impedance Analyzer (IA)

Make : Agilent, USA
Model : 4192A
Applications : It is used to measure the impedance of various electronic components and materials. It works by applying an AC signal to the component and measuring the resulting voltage and current. This data is then used to calculate the impedance of the component.



High/Fast performance Liquid Chromatography (HPLC/FPLC)



Make : Agilent
Model : 1220 Infinity Series
Applications : It is a powerful analytical technique used to separate, identify, and quantify the components in mixture of compounds. It is widely used in various industries such as pharmaceuticals, food and beverage, environmental analysis, and many others.

Density Functional Theory (DFT)

Software : Gaussian 09
Model : B3LYP
Applications : Density functional theory (DFT) is a quantum-mechanical (QM) method used in chemistry and physics to calculate the electronic structure of atoms, molecules and solids. It is very popular in computational solid-state physics since the 1970s.