



MANONMANIAM SUNDARANAR UNIVERSITY
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CONFOCAL RAMAN SPECTROSCOPY- WITEC ALPHA 300-R



Confocal Raman Spectroscopy is an imaging technique that combines confocal microscopy with Raman spectroscopy. It provides spatially resolved chemical information about a sample by probing its vibrational modes. A focused laser beam is used to excite the sample, and the scattered light is analyzed for Raman shifts. This technique allows for 3D imaging with high spatial resolution and can be used to analyze various materials, including biological samples, polymers, and nanomaterials. Confocal Raman Spectroscopy is valuable in areas such as materials science, pharmaceuticals, and biomedical research.

User Fees per sample (incl of 18% GST)			
	University/Affiliated Colleges	Other Universities/Institutions	Industries/Non- Academic
Raman spectrum	118	354	590
2D confocal image for 60 mins	472	1416	2360



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SINGLE CRYSTAL X-RAY DIFFRACTOMETER – BRUKER Q8 QUEST



A Single Crystal X-ray Diffractometer is a powerful instrument used to determine the atomic structure of crystalline materials. It utilizes the principle of X-ray diffraction, where a single crystal is exposed to X-ray radiation, causing the X-rays to scatter. The scattered X-rays are detected, and their diffraction patterns are used to calculate the positions of the atoms within the crystal. This technique provides precise information about bond lengths, angles, and molecular arrangements, aiding in the study of materials, small organic molecules, and biological macromolecules. Single Crystal X-ray Diffractometers are essential tools in fields such as chemistry, materials science, and structural biology.

User Fees per sample (incl of 18% GST)		
University/Affiliated Colleges	Other Universities/Institutes	Industries/Non-Academic
1180	3540	5900



SCANNING ELECTRON MICROSCOPE (SEM) WITH ENERGY DISPERSIVE X-RAY SPECTROSCOPY (EDX)

A Scanning Electron Microscope (SEM) with Energy Dispersive X-ray Spectroscopy (EDX) is a powerful analytical tool used for high-resolution imaging and elemental analysis. The SEM uses a focused electron beam to scan the sample surface, generating detailed images with magnifications ranging from nanometers to micrometers. EDX is an integrated system that detects characteristic X-



rays emitted by the sample when bombarded with the electron beam. This enables identification and quantification of the elemental composition of the sample. SEM with EDX is extensively employed in materials science, geology, forensics, and nanotechnology for studying sample morphology, elemental mapping, and chemical characterization at micro- to nano-scale resolutions.

User Fees per sample (incl of 18% GST)			
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SEM with Coating	236	708	1180
SEM with EDX	354	1062	1770



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ATOMIC FORCE MICROSCOPY – OXFORD MFP 3D ORIGIN



Atomic Force Microscopy (AFM) is a nanoscale imaging technique. It uses a sharp probe to scan the surface of a sample, measuring forces between the probe and the surface. AFM provides high-resolution topographic, mechanical, and electrical information about the sample

OPERATING MODES

Contact mode; Kelvin Probe Force Microscopy (KPFM); Lateral Force Mode (LFM); Nanolithography; Nanomanipulation; Phase imaging; Piezo response Force Microscopy (PFM); Switching spectroscopy PFM; Tapping mode (AC mode); Tapping mode with digital Q control; Vector PFM

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236	708	1180



BRUNAUER-EMMETT-TELLER (BET) SURFACE AREA ANALYSER

BET (Brunauer-Emmett-Teller) is a widely used technique for surface area determination based on physisorption. It measures the adsorption of gas molecules onto a solid material, allowing calculation of the specific surface area. Physisorption refers to the weak van der Waals forces between gas molecules and the solid surface. Chemisorption, on the other hand, involves the formation of strong chemical bonds between gas molecules and the surface, providing information about active sites and surface reactivity. By analyzing the amount of adsorbed gas at different pressures, BET provides insights into the surface properties and porosity of materials.



User Fees per sample (incl of 18% GST)			
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Physisorption	590	1770	2950
Chemisorption	590	1770	2950



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MULTICHANNEL PHOTO AND ELECTROCHEMICAL WORK STATION



A Multichannel Photo and Electrochemical Workstation is a versatile instrument used for characterizing and analyzing materials and devices in various fields such as energy storage, catalysis, and photovoltaics. It allows simultaneous measurements of multiple parameters, including photocurrent, photovoltage, and electrochemical signals. The workstation provides precise control of light intensity, potential, and scan rates, enabling detailed investigations of material properties and reaction kinetics. Its multichannel capability enhances efficiency by enabling parallel experiments and comparative studies, offering valuable insights for research and development in diverse applications.

User Fees per sample (incl of 18% GST)			
	University/Affiliated Colleges	Other Universities/Institutions	Industries/Non- Academic
CV	118	354	590
IV	118	354	590
EIS	236	708	1180
CD	354	1062	1770
CD Stability	354	1062	1770



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GAS CHROMATOGRAPHY- SHIMADZU GC-2014



Gas Chromatography (GC) is a widely used analytical technique. It separates and analyzes volatile compounds in a mixture. The sample is vaporized and passed through a column, where different compounds interact with the stationary phase and elute at different times. The separated components are detected, quantified, and used for identification, making GC valuable in various industries such as environmental analysis, pharmaceuticals, and forensic science.

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236	708	1180



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GAS CHROMATOGRAPH- MASS SPECTROSCOPY- GCMS



Gas Chromatography-Mass Spectrometry (GC-MS) combines the separation power of gas chromatography with the identification capabilities of mass spectrometry. It separates and analyzes complex mixtures of volatile compounds. In GC, the sample is vaporized and passed through a column, while in MS, the compounds are ionized and fragmented, generating mass spectra. The resulting spectra are compared to a database for compound identification. GC-MS is widely used in forensic analysis, environmental monitoring, and drug discovery, providing high sensitivity and specificity in compound identification.

User Fees per sample (incl of 18% GST)		
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236	708	1180



MICROBIAL IDENTIFICATION SYSTEM

A microbial identification system is a tool used to accurately identify and classify microorganisms. It utilizes various techniques such as phenotypic, genotypic, and proteomic methods. Phenotypic approaches involve observing the physical characteristics and growth patterns of microorganisms. Genotypic methods analyze the genetic



material of microbes through DNA sequencing or fingerprinting. Proteomic techniques examine the protein profiles of microorganisms. These systems help determine the species, strain, and sometimes even the antibiotic susceptibility of the microorganism, aiding in medical diagnostics, food safety, and environmental monitoring. The microbial identification system plays a crucial role in disease diagnosis, epidemiology, and microbiological research.

User Fees per sample (incl of 18% GST)			
	University/Affiliated Colleges	Other Universities/Institutions	Industries/Non-Academic
Bacteria	590	1770	2950
Fungus	2006	4110	5900



SIMULTANEOUS THERMAL ANALYZER (STA)

A simultaneous thermal analyzer (STA) is an analytical instrument used to study the thermal properties of materials. It combines two techniques, thermogravimetry (TG) and differential scanning calorimetry (DSC), simultaneously. TG measures the weight changes of a sample as a function of temperature or time, while DSC measures the heat flow into or out of the sample. STA allows for the simultaneous analysis of mass changes and heat effects, providing comprehensive information about thermal events such as phase transitions, decomposition, and oxidation. It is widely used in various fields, including materials science, pharmaceuticals, polymers, and energy research. STA helps in characterizing and understanding the thermal behavior of materials, aiding in the development and optimization of processes and materials.



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University/Affiliated colleges	Other Universities/Institutions	Industries/Non-academic
708	2124	3540



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UV-VIS NIR SPECTROPHOTOMETER



A UV-VIS NIR Spectrophotometer is an analytical instrument used to measure the absorption or transmission of light across a wide range of wavelengths, including ultraviolet (UV), visible (VIS), and near-infrared (NIR) regions. It provides valuable information about the electronic and molecular structure of substances. The instrument utilizes a light source, a sample holder, and a detector to measure the intensity of light before and after passing through the sample. UV-VIS NIR Spectrophotometers are widely used in various industries, including pharmaceuticals, chemistry, environmental analysis, and materials science, for quantitative analysis, quality control, and research purposes.

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118	354	590



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CENTRIFUGE – OPTIMA XPN-100 ULTRACENTRIFUGE



An ultracentrifuge is a powerful laboratory instrument used for high-speed centrifugation. It can spin samples at very high speeds, typically exceeding 100,000 revolutions per minute (RPM). This rapid rotation generates strong centrifugal forces, allowing for the separation of particles or molecules based on their size, shape, and density. Ultracentrifuges are commonly used in biochemistry and molecular biology research for applications such as isolating subcellular components and studying macromolecules. They typically feature advanced safety features, precise temperature control, and a variety of rotor options for different sample types.

User Fees per sample (incl of 18% GST)		
University/Affiliated colleges	Other Universities/Institutions	Industries/Non-Academic
177/hour	531/hour	885/hour