

राष्ट्रीय प्रौद्योगिकी संस्थान राउरकेला

National Institute of Technology Rourkela

Centralised Instrumentation Facility Equipment Usage Rate

| Name of Instrument | Name of Experiment | Condition of Analysis | Service Units | Academic & Educational Institution | R & D National Laboratory | Industry | International |
|--------------------------------|--|--|----------------------|------------------------------------|---------------------------|------------|---------------|
| 7-Axis Faro Arm Scanner | Contact & non-contact type 3D Scanning | Prototype of the model is required to perform scanning | 1 Hour | ₹ 500.00 | ₹ 500.00 | ₹ 700.00 | ₹ 1,105.33 |
| Accelerated Solvent Extractor | Extraction of lipid, etc | Isolation | 1 Experiment | ₹ 7,000.00 | ₹ 7,000.00 | ₹ 9,000.00 | ₹ 9,000.00 |
| AKTA Prime Plus | Chromatographically analysis | Suspended sample | 1 Sample | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 2,000.00 | ₹ 3,672.68 |
| Atomic Absorption Spectrometer | Heavy Metal Concentration Analysis | Liquid sample | 1 Parameter / Sample | ₹ 2,500.00 | ₹ 2,500.00 | ₹ 3,500.00 | ₹ 3,500.00 |
| ATR-FTIR | Bond Vibration peak analysis | Qualitative Sample | 1 Experiment | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 2,000.00 | ₹ 5,000.00 |
| BET Surface area analyzer | Surface Area Analyzer and isotherm | Liquid nitrogen will be provided | 1 Sample | ₹ 5,500.00 | ₹ 5,500.00 | ₹ 7,500.00 | ₹ 5,890.72 |

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| Cell culture Centrifuge | To centrifuge animal cell culture samples | Liquid cell suspension | 1 Experiment | ₹ 50.00 | ₹ 100.00 | ₹ 200.00 | ₹ 300.00 |
| CHNS Analyzer | C H N S (elemental) analysis | Argon Gas will be provided | 1 Experiment | ₹ 1,500.00 | ₹ 1,500.00 | ₹ 2,000.00 | ₹ 367.56 |
| Circular-Dichroism (CD) spectrophotometer | Protein/Peptide secondary structure | Nitrogen Gas will be provided | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 3,672.57 |
| | Protein/Peptide secondary structure | Nitrogen Gas will be provided | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 3,750.00 |
| CNC – FlexTurn | Machining of soft materials | CAD model should be in IGES file format is required. | 1 Hour | ₹ 254.00 | ₹ 280.00 | ₹ 350.00 | ₹ 736.93 |
| Confocal Microscope | Flourescence property, photo bleaching . live cell study, cell cycle analysis, apoptosis, cancer cell analysis. 3D imaging, cell penetration, FRAP, FRET | Proper staining and dye details with excitation and emission spectra | 1 Sample | ₹ 3,000.00 | ₹ 3,000.00 | ₹ 4,000.00 | ₹ 6,000.00 |
| | flourescence property, photo bleaching . live cell study, cell cycle analysis, apoptosis, cancer cell analysis. 3D imaging, cell penetration, FRAP, FRET | Proper staining and dye details with excitation and emission spectra | 1 Sample | ₹ 4,000.00 | ₹ 4,000.00 | ₹ 5,000.00 | ₹ 7,000.00 |

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| Differential Scanning Calorimetry | DSC/TG(up to 14000C) | Min 5 g sample is required stating the Melting temp. & comp. of sample | 1 Sample | ₹ 4,300.00 | ₹ 5,375.00 | ₹ 6,450.00 | ₹ 8,600.00 |
| | DSC/TG (Up to10000C) | Min 5 g sample is required stating the Melting temp. & comp. of Sample | 1 Sample | ₹ 3,100.00 | ₹ 3,875.00 | ₹ 4,600.00 | ₹ 6,200.00 |
| DIFFERENTIAL SCANNING CALORIMETER | Thermoanalytical experiment of Bio molecule | Thermoanalytical experiment of Bio molecule | 1 Sample | ₹ 5,000.00 | ₹ 5,000.00 | ₹ 10,000.00 | ₹ 15,000.00 |
| Differential Scanning Calorimetry | Differential Scanning Calorimetry | Differential Scanning Calorimetry | 1 Sample | ₹ 800.00 | ₹ 800.00 | ₹ 1,000.00 | ₹ 0.00 |
| Digital Servo Electric Universal Testing Machine | tensile, compressive, bending and fatigue strength of beam, column including composite | Determination of tensile, compressive, bending and fatigue strength | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 4,000.00 |
| Dynamic Mechanical Thermal Analyser | Dynamic Mechanical Thermal Analyser | Dynamic Mechanical Thermal Analyser | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 0.00 |

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| | Dynamic Mechanical Thermal Analyser | Dynamic Mechanical Thermal Analyser | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 0.00 |
| | Dynamic Mechanical Thermal Analyser | Dynamic Mechanical Thermal Analyser | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 0.00 |
| Dynamic Universal Testing Machine | Tensile Testing without Strain Gauge | Tensile Testing without Strain Gauge | 1 Sample | ₹ 250.00 | ₹ 250.00 | ₹ 1,000.00 | ₹ 0.00 |
| | Fatigue Test(HCF) (Min sample 5 nos) | Fatigue Test(HCF) (Min sample 5 nos) | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 5,000.00 | ₹ 0.00 |
| | Fatigue Test(HCF) (Min sample 5 nos) | Fatigue Test(HCF) (Min sample 5 nos) | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 5,000.00 | ₹ 0.00 |
| | JIC / KIC Tests | JIC / KIC Tests | 1 Sample | ₹ 750.00 | ₹ 750.00 | ₹ 6,000.00 | ₹ 0.00 |
| Environmental Scanning Electron Microscope | Material Surface morphology, cell morphology | High vacuum Mode/Low vacuum ESEM mode | 1 Sample | ₹ 1,500.00 | ₹ 1,500.00 | ₹ 2,500.00 | ₹ 3,500.00 |
| | Material Surface morphology, cell morphology | High vacuum Mode/Low vacuum | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 5,000.00 |

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| | | ESEM mode | | | | | |
| ESI Mass Spectrophotometer | Determine exact mass of compound | Determine exact mass of compound | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 2,000.00 | ₹ 3,750.00 |
| Field Emission Scanning Electron Microscope | Sample Imaging (max. 5 samples) | Size of sample should be max. 5 x 5 x 5 mm ³ stating magnetic and non-magnetic nature of sample, Biological and hygroscopic samples are not preferable, Time slot of 2 hrs and for maximum 5 samples | 1 Sample | ₹ 6,500.00 | ₹ 8,125.00 | ₹ 9,750.00 | ₹ 13,000.00 |
| | EDX / Mapping (Additional) (Per EDX Analysis) | Size of sample should be max. 5 x 5 x 5 mm ³ stating magnetic and non-magnetic nature of sample, Biological and | 1 Sample | ₹ 1,000.00 | ₹ 1,250.00 | ₹ 1,500.00 | ₹ 2,000.00 |

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| | | hygroscopic samples are not preferable, Time slot of 2 hrs and for maximum 5 samples | | | | | |
| Flow Cytometer | cell cycle analysis/ apoptosis. ROS detection, | cell cycle analysis/ apoptosis. ROS detection, | 1 Sample | ₹ 3,000.00 | ₹ 3,000.00 | ₹ 4,000.00 | ₹ 0.00 |
| | cell cycle analysis/ apoptosis. ROS detection, | cell cycle analysis/ apoptosis. ROS detection, | 1 Sample | ₹ 3,000.00 | ₹ 3,000.00 | ₹ 4,000.00 | ₹ 0.00 |
| Fourier Transform Infrared Spectroscopy-Attenuated Total Reflection Microscope | Fourier Transform Infrared Spectroscopy | Fourier Transform Infrared Spectroscopy | 1 Sample | ₹ 800.00 | ₹ 800.00 | ₹ 1,000.00 | ₹ 0.00 |

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| Gas Chromatograph Mass Spectroscope | GC-MS | Only Liquid samples compatible with Column available. PIC needs to be contacted for availability of column. Conditions: - (a) User will provide detailed method protocol. (b) User will supply standards as per their requirement. (c) Interpretation of fragment spectra of MS is User's responsibility. | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 4,000.00 |
| Heavy Duty Milling Machine | Milling | Milling | 1 Hour | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 0.00 | ₹ 0.00 |
| High Pressure liquid Chromatography | High performance liquid chromatography | Solvent will be provided | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 3,681.18 |

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| High Resolution Mass Spectrometer | Determine exact mass of compound | Compound should be highly purified. Sample should be completely soluble with mother solvent. | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 3,000.00 | ₹ 3,000.00 |
| High temperature microscope | High Temp. Microscope | High Temp. Microscope | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 0.00 |
| HPLC with Refractive Index Detector | Column chromatography | Column chromatography | 1 Experiment | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 2,000.00 | ₹ 2,000.00 |
| Ion Chromatography | Ion Chromatography | Aqueous solution (pH <11) | 1 Sample | ₹ 2,000.00 | ₹ 3,000.00 | ₹ 5,000.00 | ₹ 0.00 |
| ISOTHERMAL TITRATION CALORIMETER | Binding enthalpy of biomolecules | Binding enthalpy of biomolecules | 1 Sample | ₹ 5,000.00 | ₹ 5,000.00 | ₹ 10,000.00 | ₹ 15,000.00 |
| Large Hydraulic Tilting Flume | Measurement of flow parameters in an Open channel flow | Both for sub critical and super critical flow condition with controlled flow systems (flow rate with in 0.5m ³ /s) | 1 Sample | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 6,000.00 | ₹ 6,000.00 |

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| Lyophilizer | Bacteria and Protein Lyophilization | Sample should be freeze dried in – 80 refrigerator for 24 hrs / blast freeze before run, Volume of sample not more than 10 ml per tube, Max 5 sample per user | 1 Experiment | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 4,000.00 | ₹ 4,000.00 |
| Melvern Nano ZS | Nano-Particle Size Analysis By DLS method | Sample should be non reactive to Polypropylene | 1 Sample | ₹ 1,100.00 | ₹ 1,375.00 | ₹ 1,650.00 | ₹ 2,200.00 |
| | Zeta Potential Measurement | Sample should be non reactive to Polypropylene | 1 Sample | ₹ 1,100.00 | ₹ 1,375.00 | ₹ 1,650.00 | ₹ 2,200.00 |
| Mojo 3D Printer | 3D Printing with ABS plastic material | CAD model is required in STL file format. Maximum component size is 5*5*5 inches | 1 Cubic Inch | ₹ 1,100.00 | ₹ 1,100.00 | ₹ 1,500.00 | ₹ 2,210.60 |

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| Multipurpose X-Ray Diffraction System | Analyze the structure of crystalline materials | Analyze the structure of crystalline materials | 1 Hour | ₹ 600.00 | ₹ 750.00 | ₹ 1,000.00 | ₹ 5,000.00 |
| Nuclear Magnetic Resonance Spectrometer | (2D) | (2D) | 1 Experiment | ₹ 1,200.00 | ₹ 1,200.00 | ₹ 2,000.00 | ₹ 3,750.00 |
| | (1H,19F,31P,11B) | (1H,19F,31P,11B) | 1 Experiment | ₹ 300.00 | ₹ 300.00 | ₹ 500.00 | ₹ 2,250.00 |
| | (13C,DEPT) | (13C,DEPT) | 1 Experiment | ₹ 800.00 | ₹ 800.00 | ₹ 1,500.00 | ₹ 3,000.00 |
| PL Micro Raman Spectrometer | Raman spectroscopy | NA | 1 Hour | ₹ 600.00 | ₹ 750.00 | ₹ 1,000.00 | ₹ 5,000.00 |
| Potentiostat/Galvanostat | Potentiostat | Potentiostat | 1 Sample | ₹ 200.00 | ₹ 200.00 | ₹ 400.00 | ₹ 0.00 |
| Rapid Prototyping Machine | RPM | RPM | 1 Cubic Inch | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 3,500.00 | ₹ 0.00 |
| Rheometer | Rheological analysis | Min 250 ml of sample is required | 1 Sample | ₹ 2,100.00 | ₹ 2,625.00 | ₹ 3,150.00 | ₹ 4,200.00 |
| Scanning Electron Microscope | SEM | SEM + EDS with Platinum Coating | 1 Sample | ₹ 1,200.00 | ₹ 1,200.00 | ₹ 2,000.00 | ₹ 0.00 |
| | SEM | SEM + EDS with Platinum Coating | 1 Sample | ₹ 1,200.00 | ₹ 1,200.00 | ₹ 2,000.00 | ₹ 0.00 |

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| Scanning Probe Microscope | AFM | AFM | 1 Sample | ₹ 500.00 | ₹ 500.00 | ₹ 1,000.00 | ₹ 0.00 |
| | STM | STM | 1 Sample | ₹ 600.00 | ₹ 600.00 | ₹ 1,200.00 | ₹ 0.00 |
| | MFM | MFM | 1 Sample | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 2,000.00 | ₹ 0.00 |
| Transmission Electron Microscope | HR TEM ,STEM, HAADF, EDS Mapping | HR TEM ,STEM, HAADF, EDS Mapping | 1 Experiment | ₹ 3,000.00 | ₹ 5,000.00 | ₹ 6,000.00 | ₹ 8,098.00 |
| Triaxial Shear Test Apparatus | Triaxial Shear Test | Shear parameters | 1 Experiment | ₹ 10,000.00 | ₹ 8,000.00 | ₹ 15,000.00 | ₹ 30,000.00 |
| Ultra-sonicator | Sonication | Sonication | 1 Experiment | ₹ 250.00 | ₹ 250.00 | ₹ 500.00 | ₹ 500.00 |
| Universal Testing Machine | Tensile strength analysis | Sample type: rectangular or single fibre Sample dimension: length minimum 30mm/ max 60mm Width:max 25mm Thickness: 5mm Load cell capacity: 1000 N Rate of | 1 Sample | ₹ 500.00 | ₹ 500.00 | ₹ 1,000.00 | ₹ 2,000.00 |

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| | | extension : Min 0.1mm/min ute to max 20mm/minu te | | | | | |
| Universal Testing Machine with Environmental Chamber | Mechanical parameter testing | ASTM standard sample | 1 Sample | ₹ 1,200.00 | ₹ 1,200.00 | ₹ 1,500.00 | ₹ 0.00 |
| Universal Testing Machine-600kN & 1000kN | Tensile, Compression test | Sample must be prepared as per required standard | 1 Sample | ₹ 500.00 | ₹ 600.00 | ₹ 1,000.00 | ₹ 0.00 |
| UV-Vis Spectrophotometer | Absorption spectra/kinetics | Qualitative and quantitative analysis | 1 Experiment | ₹ 1,000.00 | ₹ 1,500.00 | ₹ 2,000.00 | ₹ 5,000.00 |
| UV-Visible Spectrometer | UV-Visible Spectroscopy (800nm to 200nm) | Sample should be non reactive to Polypropylene | 1 Sample | ₹ 2,100.00 | ₹ 2,625.00 | ₹ 3,150.00 | ₹ 4,200.00 |
| Vibrating Sample Magnetometer | M vs. H and M vs. T measurement (Max up to 500 degreeC and 1 Tesla field) | Solid sample | 1 Hour | ₹ 500.00 | ₹ 500.00 | ₹ 1,000.00 | ₹ 5,000.00 |
| Xray Diffractometer-Texture Measurement | XRD | XRD | 1 Sample | ₹ 1,000.00 | ₹ 1,000.00 | ₹ 3,000.00 | ₹ 0.00 |

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| | XRD Texture | XRD Texture | 1 Sample | ₹ 2,000.00 | ₹ 2,000.00 | ₹ 4,000.00 | ₹ 0.00 |
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Source: <https://nitrkl.ac.in/CIF/Services/Sample-Charges>