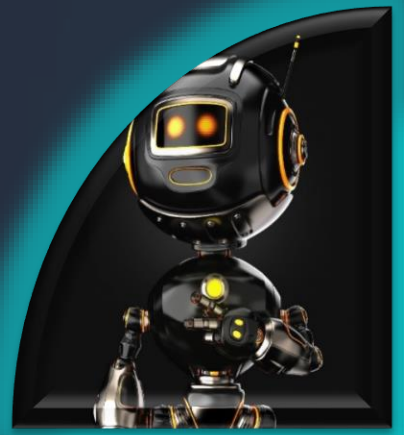
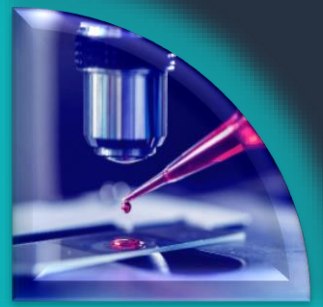
NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

CENTRAL RESEARCH FACILITIES





CONTACT US:

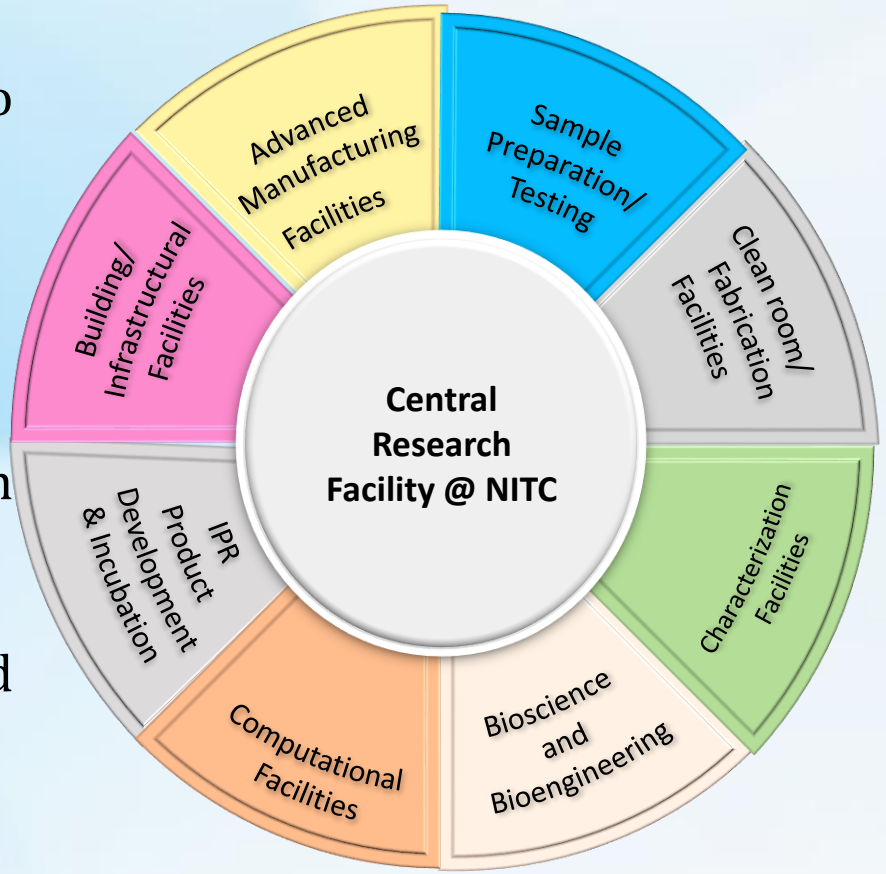
CENTRAL RESEARCH FACILITY (CRF)

About

A technology hub to address technical challenges toward the sustainable development through our technical competency.

Objectives

- ✓Enhance interdisciplinary, transformational research to international standards.
- ✓Utilized infrastructure effectively to boost education and research.
- ✓Strengthen industry-institute ties via professional networks.
- ✓Achieve excellence in teaching and research through national/international collaborations.
- ✓Empower students with skills for entrepreneurship and employability.
- ✓Offer technical solutions to societal issues.



CENTRAL RESEARCH FACILITIES OF NIT CALICUT LOCATED AT:

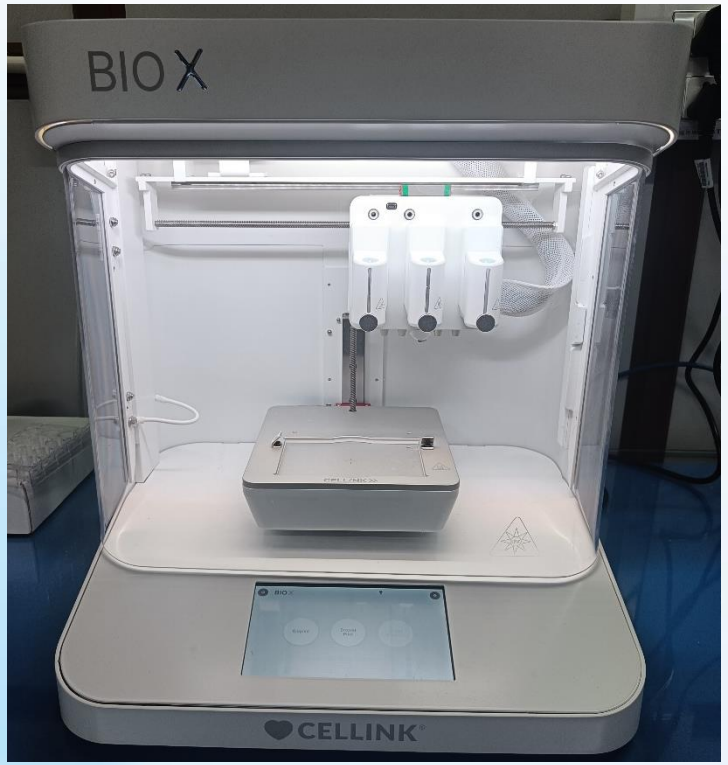
- BIOSCIENCE AND ENGINEERING DEPARTMENT (BSED)
- CENTRE FOR COMPUTATIONAL MODELING AND SIMULATION (CCMS)
- CIVIL ENGINEERING DEPARTMENT (CED)
- CENTRE FOR MATERIALS CHARACTERIZATION (CMC)
- CHEMICAL ENGINEERING DEPARTMENT (CHED)
- DEPARTMENT OF CHEMISTRY
- COMPUTER SCIENCE AND ENGINEERING DEPARTMENT (CSED)
- ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT (ECED)
- ELECTRICAL ENGINEERING DEPARTMENT (EED)
- MECHANICAL ENGINEERING DEPARTMENT (MED)
- MATERIALS SCIENCE AND ENGINEERING DEPARTMENT (MSED)
- DEPARTMENT OF PHYSICS

Central Research Facility @ NITC

BIOSCIENCE AND ENGINEERING DEPARTMENT (BSED)

Bioscience and Engineering Department

Name of the equipment: 3D bioprinter
Make & Model: Cellink ; BioX Gen III
Source of funding & Project ID: Institute Plan Fund
Location: Room No. 307D, Department of Bioscience and Engineering



Features of the equipment

- Versatile support for 3 print head
- Patented clean chamber technology for contamination free 3D bioprinting
- Universal bioink capability

Unique features/Measurement capabilities, if any

- Theoretical 3D printing resolution: 1µm (practical limit 100 µm)
- Integrated DNA studio software for design of simple structures
- Application: Bioprinting scaffolds for disease models, drug testing, etc.

Measurement/Sample specifications:

- Viscosity: 1000-10000 mPa.S
- Only biocompatible polymers allowed | No microbial samples allowed
- Both biopolymers and synthetic polymers (Melting point: 200°C)

Measurement charges (with GST):

Sl No.	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	3D bioprinting	500/hr	1500/hr	1500/hr	2000/hr

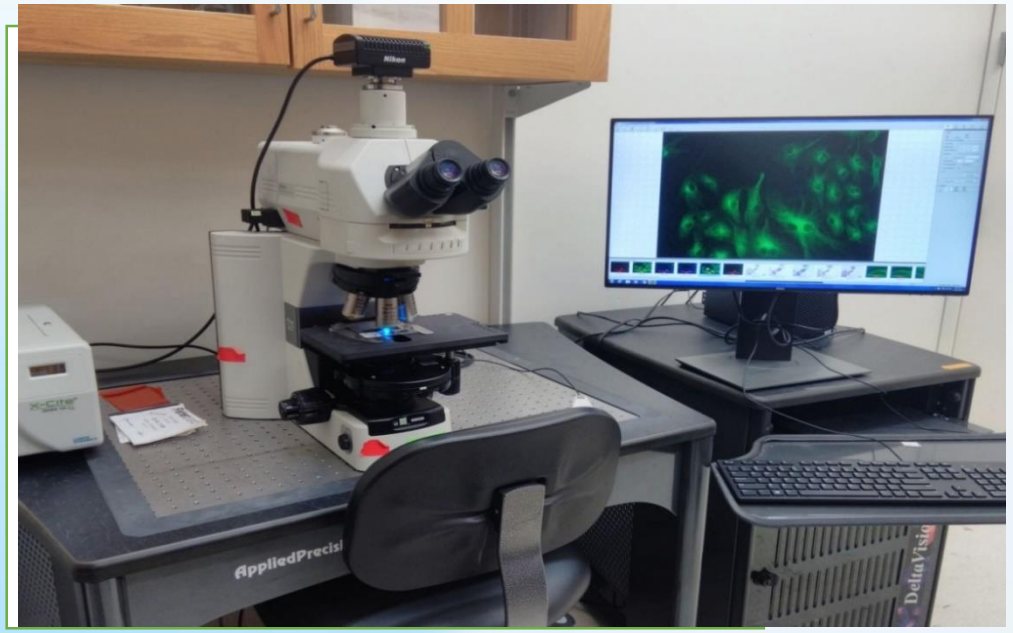
Contact details:
Name: Dr. Baiju G Nair
Email ID: bgnair@nitc.ac.in
Phone number: +91-7034011575

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id: 3246253

Department of Bioscience and Engineering

Name of the equipment : Inverted Fluorescent Microscope
Make & Model : NIKON, Eclipse- Ti FL549274
Source of funding & Project ID: PLAN FUND
Location: Room No : Downstream Process Lab, BSED



Features of the equipment: Inverted fluorescence microscope
Motorized stage
Light source: High pressure Mercury Lamp
Excitation filters : UV, Blue and Green light
Emission filters: Blue, Green and Red fluorescence
Objectives: 40x, 20x and 5x
Attached with a camera for taking images
Unique features/Measurement capabilities, if any
Resolution in the optical range > 25 micrometer

Measurement/Sample specifications:
Biological sample fixed on a glass slide. The sample should be stained with a fluorophore or a fluorophore conjugated antibody.
Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Charges are applied depending on usage time.	Rs. 100 (per hour)	200 + 18%GST Rs. 236 (per hour)	200 + 18%GST Rs. 236 (per hour)	300 + 18%GST Rs. 354 (per hour)
2	Minimum charge	Rs.100	200 + 18%GST Rs. 236	200 + 18%GST Rs. 236	300 + 18%GST Rs. 354

Contact details:
Name : Dr. Rathinasamy K (Faculty-in-Charge)
: Mr. Sooraj, Mr. Jishnu, (Technical staff)
Email ID : **sbtoffice@nitc.ac.in**
Phone number :0495-2285451
Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3246255

Department of Bioscience and Engineering

Name of the equipment : Microplate reader
Make & Model : Thermoscientific Multiskan SkyHigh, 1550-800-744
Source of funding & Project ID: Plan Fund-2021
Location: Room No 307A : Microbiology Laboratory, BSED

Features of the equipment: It features a wavelength selection system using a monochromator and supports a wavelength range from 200 to 1,000 nanometers, with 1 nm increment steps. The readout range extends up to 4 absorbance units, and the bandwidth is less than 2.5 nm. At 450 nm, the linearity ranges from 0 to 2.5 Abs with a deviation of 2%.

Unique features/Measurement capabilities, if any: Measurement speed is approximately 6 seconds for a 96-well plate, starting from well A1 back to A1. Plate shaking is performed linearly. The device can perform spectral scanning from 200 to 1,000 nm in 10 seconds with 1 nm steps. Additionally, it offers an incubation range from ambient temperature plus 2°C up to 45°C.

Measurement/Sample specifications: The device is compatible with 96 well plates, including Thermo Scientific µDrop Plates.
Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Absorbance measurements	Rs. 100/ sample	Rs. 100 + 18%GST/= Rs. 118/ sample	Rs. 100 + 18%GST/= Rs. 118/ sample	Rs. 150 + 18%GST/= Rs. 177/ sample

Contact details:
Name : Dr. Suchithra.T.V
Email ID : **drsuchithratv@nitc.ac.in**
Phone number :0495-2285456, 97442 44461

Book through I-STEM : https://www.istem.gov.in/
I-STEM registration id :3246258

CENTRE FOR COMPUTATIONAL MODELING AND SIMULATION (CCMS)

Centre for Computational Modeling and Simulation (CCMS)

Name of the equipment : Hybrid HPC Cluster (Madhava) & NVIDIA Deep Learning system
Make & Model : Lenovo ThinkSystem / NVIDIA DGX workstation
Source of funding & Project ID: HEFA
Location: Room No : CCMS, old library building

Features of the equipment:

- One master node, 31 compute nodes, 2 GPU Nodes (Lenovo Think System, Intel processors, 1280 computing cores)
- 102 TFlops theoretical computing speed (benchmarked: 67%)
- 260 TB dedicated data storage facility (parallel file system, 6 GBps read-write speed)
- Two 40 KVA online UPS for power backup (in a 1+1 redundant configuration)
- InfiniBand connectivity
- NVIDIA DGX Deep Learning system with 500TFlops performance (4 A100 GPU cards)
- Data Centre with two system racks and two precision cooling un

Unique features/Measurement capabilities, if any: NIL

Measurement/Sample specifications: Only parallel computational tasks can be accepted.

Measurement charges (with GST): Visit CRF website

Contact details:
Name : R. R. Krishna (Staff-in-Charge CCMS)
Email ID : ccmsadmin@nitc.ac.in
Phone number : **0495 2285600**

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3245582 (Madhava HPCC)
3245584 (DGX Station)

CIVIL ENGINEERING DEPARTMENT (CED)

Department of Civil Engineering

Name of the equipment : Hydraulic UTM with PC Based control and measurement system
Make & Model : Hydraulic engineering and instruments & HL-590.25
Source of funding & Project ID: PLAN FUND
Location: Room No : SM Lab , Department of Civil Engineering

Features of the equipment: Easy crosshead movement on two pillars to adjust the gap for specimen placement, easily changeable hydraulically operated grips for tension test, fully computer-controlled operation with user-friendly software, control on load (kN/sec), stress (N/mm²/sec), displacement (mm/sec) or strain basis, facility to study post-failure behaviours of specimens, inching/release operation to set sample, auto-release facility after specimen failure.

Unique features/Measurement capabilities, if any: Fully automatic servo-controlled Universal Testing Machine, hydraulically operated open crosshead, front-loading jaws

Measurement/Sample specifications: Universal Testing Machines for concrete typically have a load capacity of up to 1000 kN.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Cylinder, cube, beam, Steel samples	Rs. 1000	2000+ 18%GST Rs.	3000+ 18%GST Rs.	4000+ 18%GST Rs.

Contact details:
Name : Noushad K K (Staff-in-Charge)
Email ID : noushadkk@nitc.ac.in
Phone number : 0495-2286247

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3200832

Department of Civil Engineering

Name of the equipment : Universal Testing machine 1000 KN
Make & Model : Bluestar. & UTE 2001

Source of funding & Project ID: Plan fund

Location: Room No : SM Lab, Department of Civil engineering

Features of the equipment: The universal structural testing frame features a robust and stable design, making it ideal for testing structural components such as beams, columns, and reinforcement bars. It is suitable for both instructional laboratory experiments and research-based analysis, providing the versatility needed in academic and industrial environments. The frame is capable of applying large loads uniformly and accurately, ensuring reliable test results. It operates through a simple hydraulic system with manual controls, offering ease of use without requiring specialized training. Additionally, the frame supports various loading configurations, allowing it to accommodate different testing setups depending on the structural element being evaluated.

Unique features/Measurement capabilities, if any: This equipment is specially designed for testing full-scale or scaled-down structural members such as beams, columns, and reinforcement bars. It allows for accurate load application and measurement, with a capacity of up to 100 tones. The system is particularly useful for observing structural failure modes and validating theoretical models, making it an effective tool for both classroom instruction and research applications.

Measurement/Sample specifications: Universal testing machine for concrete typically have a load capacity upto 1000 KN

Contact details:
Name : Noushad K K (Staff-in-Charge)

Email ID : noushadkk@nitc.ac.in
Phone number : 0495-2286840

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charge per hour	500/- per hour	1500/- per hour	2500/- per hour	3000/- per hour

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3220833

Department of Civil Engineering

Name of the equipment : 500kN Servo Hydraulic Actuator system

Make & Model :BISS, Bangalore ,Bi-03-Ec-801-05

Source of funding & Project ID: Plan fund

Location: Room No : SM Lab, Department of Civil engineering

Features of the equipment: Servo hydraulic actuator is double ended double acting high precession linear actuator.

Measurement/Sample specifications : The actuator has a stroke of ±75 mm, a compression area of 25,446.9 mm², and a tension area of 15,943.58 mm². The rod is threaded with an M50x2 thread and has a thread engagement depth of 70 mm.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Axial Compression or Flexure (Cyclic/Monoto nic)	1000 per Hour	2000 per Hour	3000 per Hour	4000 per Hour
2	Axial Compression or Flexure (Cyclic/Monoto nic)	1000 per Hour	2000 per Hour	3000 per Hour	4000 per Hour
3	Axial Compression or Flexure (Cyclic/Monoto nic)	1000 per Hour	2000 per Hour	3000 per Hour	4000 per Hour

Contact details:

Name : Noushad K K (Staff-in-Charge)

Email ID : noushadkk@nitc.ac.in

Phone number : 0495-2286840

Book through I-STEM : https://www.istem.gov.in/

Department of Civil Engineering

Name of the equipment : Compression and transverse testing machine 300 T

Make & Model : UTM -100 ,VEB WERKSTOFFPROFMASCHINEN LEIPZIG,1966

Source of funding & Project ID : Plan fund

Location: Room No : SM Lab, Department of Civil engineering

Features of the equipment: The system features easy crosshead movement along dual support pillars, allowing quick and precise adjustment of the gap for specimen placement, which ensures convenient operation based on specific test requirements. It is used to determine the compressive, flexural, and crushing strength of cement, concrete, stone, and other construction materials. The equipment supports a wide range of experiments, making it suitable for undergraduate and postgraduate students as well as research scholars. With a strong and durable build quality, it is well-suited for both long-term laboratory use and field applications. The design effectively meets the needs of both instructional and research-based testing.

Unique features/Measurement capabilities, if any: This hydraulically operated machine is capable of performing both compression and flexural strength tests using a single setup. It features a high-capacity, robust design and is imported from Germany, ensuring premium quality and reliability. With a proven track record of operation since 1969, the machine demonstrates exceptional durability and consistent performance over the years.

Measurement/Sample specifications: Universal testing machine for concrete typically have a load capacity up to 1000 KN

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charge per hour	500/- per hour	1500/- per hour	2500/- per hour	3000/- per hour

Contact details:

Name : Noushad K K (Staff-in-Charge

Email ID : noushadkk@nitc.ac.in

Phone number : 0495-2286840

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3220831

Department of Civil Engineering

Name of the equipment : Digital Universal Testing machine 200 KN

Make & Model : EIE Instruments. & UTM -2011

Source of funding & Project ID: Plan fund

Location: Room No : SM Lab, Department of Civil engineering

Features of the equipment: The Digital Universal Testing Machine (UTM) is designed to perform a variety of mechanical tests, including tension, compression, and bending. It features a user-friendly digital interface that provides real-time display of load, displacement, and test status, enhancing usability and data monitoring. The machine is built with a rigid two-column frame, ensuring accurate load application and proper specimen alignment.

Unique features/Measurement capabilities, if any: The system is capable of testing various structural materials using interchangeable fixtures, including tension tests for steel bars, compression tests for concrete specimens, and bending tests for concrete beams. It features high-precision digital load measurement with excellent repeatability, ensuring consistent and reliable results.

Measurement/Sample specifications: The system is designed to test steel bars, typically ranging from 8 mm to 16 mm in diameter, for tensile strength evaluation. It also supports flexural or bending tests on concrete beams. All tests are conducted in accordance with IS code standards, with the flexibility to accommodate custom research setups as needed.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charge per hour	500/- per hour	1500/- per hour	2500/- per hour	3000/- per hour

Contact details:

Name : Noushad K K (Staff-in-Charge)

Email ID : noushadkk@nitc.ac.in

Phone number : 0495-2286840

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3220835

Department of Civil Engineering

Name of the equipment : **Moisture Induced Sensitivity Test(MIST)**
Make & Model : Instrotek, MIST
Source of funding & Project ID: PLAN FUND
Location: Room No : TRANSPORTATION LAB

Features of the equipment: Unique technology based on 30+ years of experience, wireless data collection with Bluetooth antenna and PDA, advanced user setup customizable to suit specific needs, calibration easy to calibrate and verify, data collection with 1–3 geophones, exportable to spreadsheet.

Unique features/Measurement capabilities, if any: Impact depth measurements, measurement with 3 geophones, data export to spreadsheet, wireless data collection

Measurement/Sample specifications: Impact depth on various surfaces, stress dependency measuring on different surfaces, drop height selection for accurate measurements, frequency measurement of impact, amplitude measurement of impact.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Pavement surfaces (asphalt, concrete, etc.)	Rs. 5000	5000 + 18%GST Rs.	10000 + 18%GST Rs.	15000 + 18%GST Rs.

Contact details:

Name : Ajin Das C K (Staff-in-Charge)
Email ID : ajindasck@nitc.ac.in
Phone number : 0495-2286243

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : **3220873**

Department of Civil Engineering

Name of the equipment : Hamburg Wheel Tracker
Make & Model : BO38AM
Source of funding & Project ID : PLAN FUND
Location: Room No : TRANSPORTATION LAB

Features of the equipment: Electro-mechanical system: no air or hydraulic pressure, programmable compaction: adjustable compaction cycles, heating and temperature control: maintains optimal sample workability.

Unique features/Measurement capabilities, if any: Heating of the segment roller: temperature control from room to 180 °C, programmable compaction: compaction cycles based on load or deformation values, sample preparation: uniform density and dimensions, with cored or cut-off samples for further testing.

Measurement/Sample specifications: Ability to produce samples with uniform density and dimensions, sample slabs can be cored or cut off to obtain cylinders and beams for various tests, such as bending fatigue, indirect tensile, static and dynamic creep, stiffness, and 4-point tests.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	One sample per test	Rs. 1500	2000 + 18%GST Rs.	2500 + 18%GST Rs.	4500 + 18%GST Rs.

Contact details:
Name : Ajin Das C K (Staff-in-Charge)
Email ID : ajindasck@nitc.ac.in
Phone number : 0495-2286243

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : **3222450**

CENTRE FOR MATERIALS CHARACTERIZATION (CMC)

Centre for Materials Characterization

Name of the equipment : X-ray diffractometer (XRD)
Make & Model : PANalytical, X' Pert3 Powder
Source of funding & Project ID: TEQIP III
Location: Room No : 101 MSED Department

Features of the equipment: The X'Pert³ Powder XRD from PANalytical is a high-performance X-ray diffractometer with a θ/θ high-resolution goniometer, Empyrean-based modular platform, and high-power X-ray source for precise diffraction analysis. It features a PIXcel3D detector for fast data collection, diverse sample holders, HighScore Plus software for phase analysis and upgrade options for advanced techniques like GIXRD and SAXS.

Unique features/Measurement capabilities, if any: The **X'Pert³ Powder XRD** features multi-mode detection, high-speed data acquisition, PreFIX optics, modular upgrades phase quantification and radiation safety compliance.

Measurement/Sample specifications: The **X'Pert³ Powder XRD** supports a **2θ range up to 160°**, high-resolution (0.0001°), multiple sample types (powder, thin films, capillaries), reflection/transmission modes

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Normal scan (upto 20 minutes per sample)	Rs. 175	400 + 18%GST Rs. 472	1200 + 18%GST Rs. 1416	2000 + 18%GST Rs. 2360
2	Slow Scan (morethan 20 minutes per sample)	Rs.200	600 + 18%GST Rs. 708	1800 + 18%GST Rs. 2124	3000 + 18%GST Rs. 3540

Contact details:
Name : Nithin Sivadas (Staff-in-Charge XRD)
Email ID : xrdadmin@nitc.ac.in
Phone number :0495-2286545, 8089496742

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245637**

Centre for Materials Characterization

Name of the equipment: Confocal Raman Spectrometer
Make & Model: HORIBA, LabRam HR Evo
Source of funding & Project ID):TEQIP III
Location: Room No: 204 A, First floor, MSED
Features of the equipment: The LabRAM HR Evolution Raman microscope is ideally suited for both micro and macro measurements, and offer advanced Confocal imaging capabilities in 2D and 3D.
Unique features/Measurement capabilities, if any

- Capability to perform Raman Measurements from 50 cm^{-1} to 4000 cm^{-1} with Highest Spectral Resolution of 1$cm^{-1.}$
- Excitation sources: (a) 532 nm (100 mW)785 nm (300mW) 325nm (25mW)
- Microscope Objectives: 10x,50x,100x and 40x,15x for UV laser
- XYZ Motorized stage for confocal Raman Imaging/Mapping with Single step size resolution of 100nm in XY direction and 10nm in Z direction.

Measurement/Sample specifications: Powder, Liquid, Solid, Thin film and FL paper can be tested
Measurement charges (with GST):

Contact details:
Email ID : crsadmin@nitc.ac.in
Phone number: 0495-228 6544

Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id:3245638

Analysis charge per sample				
	NIT Calicut (Internal Users)	Academic/University (Including GST)	National Lab/R&D (Including GST)	PSUs/pvt Ltd (Including GST)
Raman Spectrum	Rs. 200	Rs.472	Rs.708	Rs.1416
Raman Imaging/Mapping	Rs. 600	Rs.1416	Rs.2124	Rs.4248

Centre for Materials Characterization

Nuclear Magnetic Resonance Spectrometer

- **Make & Model: JEOL, JNM-ECZ 500R/S3**
- **NMR Processing Software: Delta NMR Data processing software**
- **Funding Agency: HEFA**
- **Location: Room 103, Dept. of Chemistry**

Features of the Equipment:

- The JEOL ECZR Series 500 MHz NMR Spectrometer features ROYALPROBE HFX (solution state), HCN triple resonance, and HXMAS (solid-state) probes, enabling precise analysis of biological samples, polymers, and fluorine containing compounds. The instrument supports a wide range of 1D and 2D NMR experiments for nuclei including ^{1}H, ^{13}C, ^{15}N, ^{19}F, ^{31}P, ^{27}Al, ^{11}B, ^{77}Se, ^{125}Te, ^{95}Mo, ^{29}Si, NoD, DEPT, 2D-COSY, 2D-NOESY/ROESY, HMBC, HMQC, HSQC, Variable Temp. (-100 to $+100^{0}C$) Experiments.

Measurement charges (with GST):

- Please visit NITC website

Liquid Nitrogen Generator

- **Make & Model: Nitrogenium Innovations and Filteration India Pvt Ltd, LN40WC**
- **Funding Agency: HEFA**
- **Location: Ground Floor, Dept. of Chemistry**

I-STEM Equipment Code: 3245640
Book through I-STEM: https://www.istem.gov.in/

Contact details:

- Technical Staff: Krishna K |Email ID: nmradmin@nitc.ac.in | Contact No: 0495 228 5344

Centre for Materials Characterization

I-STEM Equipment Code : 3245639

Name of the equipment : Vector Network Analyzer
Make & Model: ROHDE&SCHWARZ- ZNB40

- **Funding Agency: HEFA**
- **Location:** First Floor, MSED

Description

- Vector Network Analysis (VNA) is one of the most essential RF and microwave measurement approaches.

  Based on the concept of measuring the transmitted and reflected waves as a signal passes through a device under test.

  It can measure both amplitude and phase.
- Frequencyrangesfrom8kHzupto40GHz
- Widedynamicrangeofupto140dB

Instrument Faculty I/c:

Dr. Murali KP

- Email ID: kpmurali@nitc.ac.in
- Contact No: 914952286414

CHEMICAL ENGINEERING DEPARTMENT (CHED)

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (ICP-MS)
Make & Model : Perkin Elmer Nexion1000
Source of funding & Project ID : DST FIST
Location: Room No : 102 CHED

Features of the equipment:
Detect and quantify trace elements
Extended Dynamic Range
High Data Acquisition Speed

Measurement/Sample specifications:
Sample should be a Clear liquid.
Should be free from Carbon and HF
15ml sample for one analysis
Standards of 25 elements are available

Measurement charges :

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
1	ICPMS Analysis	700 (First element) + 150 per element	1400 (First element) +300 per element	1400 (First element) + 300 per element	2800 (First element) + 450 per element

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245702**

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : Thermo Gravimetric Analyzer
Make & Model : HITACHI STA7200
Source of funding & Project ID : Plan fund
Location: Room No : 102 CHED

Features of the equipment:
Used to measure the changes in the mass of a sample as a function of temperature (or time)
Maximum temperature is 1000 degree Celsius.
Inert condition is given using Nitrogen or Zero air
TG,DTG,DTA graphs are obtained

Measurement/Sample specifications:
Sample can be solid or liquid.
10mg of sample is enough
Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
1	TGA Analysis till 600°C	400	800	800	1600
2	TGA Analysis till 1000°C	800	1600	1600	3200

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245707**

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : BET Surface area analyzer
Make & Model : BELSORP-max
Source of funding & Project ID : TEQIP 2017
Location: Room No : 102 CHED

Features of the equipment:
Used for measuring specific surface area, pore size distribution, and chemisorption
High accuracy
Simultaneous measurement of multiple samples
Various measurement modes.

Measurement/Sample specifications:
Sample should be 0.1g if the expected surface area is high
0.5g if the expected surface area is low.

Measurement charges (with GST):

Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
BET Analysis	1500	3000	3000	6000

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245697**

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : Universal Testing Machine
Make & Model : SHIMADZU, AG-X plus 10KN
Source of funding & Project ID : Plan fund
Location: Room No : 102 CHED

Features of the equipment:
Used to test the mechanical properties of materials.
Both Compression and tensile testing can be done.

Measurement/Sample specifications:
Mainly used to test film samples.
Size of the sample depends on the nature of the sample.
3 Trials are done for a single sample.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
1	Tensile and compression	250	500	500	1000

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245709**

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : Total Organic Carbon Analyzer
Make & Model : SHIMADZU, TOC-L CPH E200 ROHS
Source of funding & Project ID : Plan fund
Location: Room No : 102 CHED

Features of the equipment:
Used to analyze total organic carbon in a wide range of liquid samples, including drinking water, wastewater, surface water, and industrial process water.
An additional setup for finding total nitrogen is also attached along with the equipment.

Measurement/Sample specifications:
Clear liquid sample
20mL Liquid sample

Measurement charges (with GST):

Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
TOC and TN Analysis	400	800	800	1600

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245708**

CHEMICAL ENGINEERING DEPARTMENT

Name of the equipment : Zeta potential analyzer
Make & Model : ANTON PAAR, surPASS 3
Source of funding & Project ID : Plan fund
Location: Room No : 102 CHED

Features of the equipment:
Designed to analyze the surface charge of solid materials.
study Ph dependences of zeta potential.
Can find out the isoelectric point.

Measurement/Sample specifications:
Solid film samples with uniform thickness.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute (18% GST Extra)	R&D Institute (18% GST Extra)	Industry (18% GST Extra)
1	Zeta potential analysis	500	1000	1000	2000

Contact details:
Name : Muhammed Munaver
Email ID : ched-instruments@nitc.ac.in
Phone number :0495-2285484

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3245710**

DEPARTMENT OF CHEMISTRY

Chemistry Department

Name of the equipment : High Resolution Mass Spectrometer with LC (LC-HRMS)
Make & Model : Waters, Synapt XS with Aquity H class UPLC

Source of funding : DST-FIST
Location: Room No : HRMS Room, Chemistry Department

Features of the equipment: Lock spray mass technology for measuring exact mass. Unispray Ion Source. Electron transfer dissociation & collision Induced dissociation fragmentation for providing accurate MS/MS data. The StepWave XS ion guide removes neutral species & transmits ions in a more focused beam to the detector.

Instrument Technical Description: ToF Resolution $+^{ve}$ & $-^{ve}$ ion: 75,000 FWHM.
Mass range : 100-64,000 *m/z* (V mode)
$+^{ve}$ ion sensitivity: 50pg/µL leucin encephalin,$+^{ve}$ ion MS/MS sensitivity: 100fmol/µL Fibrinopeptide
$-^{ve}$ ion MS sensitivity: 50pg/µL leucin encephalin, $-^{ve}$ ion MS/MS sensitivity: 500pg/ µL raffinose.
Dynamic range: 4 orders.
Mass measurement accuracy: <1ppm

Measurement charges (without GST):

	Liquid/Solid (Analysis: HRMS) (charges per 1 sample)	Liquid/Solid (Analysis: LC-HRMS) (charges per 1 sample)	Liquid/Solid (Analysis: MS/MS) (charges per 1 sample)
NIT Calicut User	Rs.100/-	Rs.200/-	Rs.50/- (each ion in addition to the HRMS/ LC-HRMS)
External Academia Research institute User	Rs.500/-	Rs.1000/-	Rs.250/- (each ion in addition to the HRMS/ LC-HRMS)
National lab User	Rs.600/-	Rs.1200/-	Rs.350/- (each ion in addition to the HRMS/ LC-HRMS)
Industry User	Rs.1000/-	Rs.1750/-	Rs.500/- (each ion in addition to

Contact details:
Name : Ruther Tyson Lewis
Email ID : ruthertl@nitc.ac.in
Phone number : 9845965130

Book through I-STEM : https://www.istem.gov.i

I-STEM registration id : **3244309**

Chemistry Department

Name of the equipment : Differential Scanning Calorimeter (DSC)
Make & Model : TA Instruments, DSC Q20

Source of funding : TEQIP
Location: Room No : Sophisticated Instruments Lab, Chemistry Department

Features of the equipment: Heat Flux DSC design

Instrument Technical Description:
Temperature range of -50 ^{o}C to 350 ^{o}C
Temperature Accuracy: ±0.1 ^{o}C
Temperature Precision:±0.05 ^{o}C
Dynamic Measurement Range: ±350 mW
Digital resolution: >0.04 µW
Sensitivity: 1.0 µW

Measurement charges (without GST):

	Solid/Liquid samples (RT to 350 ^{o}C)	Solid/Liquid samples (-50 ^{o}C to 350 ^{o}C)
NIT Calicut User	(a) Rs. 350/- for solid samples (for 10 ^{o}C/min); (b) Rs. 450/- for Liquid samples (for 10 ^{o}C/min)	(a) Rs. 450/- for solid samples (for 10 ^{o}C/min); (b) Rs. 550/- for Liquid samples (for 10 ^{o}C/min)
External Academia Research Institutes User	(a) Rs. 600/- for solid samples (for 10 ^{o}C/min); (b) Rs. 750/- for Liquid samples (for 10 ^{o}C/min)	(a) Rs. 750/- for solid samples (for 10 ^{o}C/min); (b) Rs. 900/- for Liquid samples (for 10 ^{o}C/min)
National Lab User	(a) Rs. 800/- for solid samples (for 10 ^{o}C/min); (b) Rs. 950/- for Liquid samples (for 10 ^{o}C/min)	(a) Rs. 1000/- for solid samples (for 10 ^{o}C/min); (b) Rs. 1150/- for Liquid samples (for 10 ^{o}C/min)
Industry User	(a) Rs. 1000/- for solid samples (for 10 ^{o}C/min); (b) Rs. 1150/- for Liquid samples (for 10 ^{o}C/min)	(a) Rs. 1200/- for solid samples (for 10 ^{o}C/min); (b) Rs. 1350/- for Liquid samples (for 10 ^{o}C/min)

Contact details:
Name : Ruther Tyson Lewis
Email ID : ruthertl@nitc.ac.in
Phone number : 9845965130

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : **3245420**

Chemistry Department

Name of the equipment : Thermo gravimetric Analyzer (TGA)
Make & Model : TA Instruments, TGA Q50

Source of funding : TEQIP
Location: Room No : Sophisticated Instruments lab, Chemistry Department

Features of the equipment: Vertical thermo balance based on null-balance principle. Dual thermocouple design for precise temperature measurements.

Instrument Technical Description:
Temperature Range: Ambient to 750 ^{o}C.
Isothermal Temperature Accuracy: ±1 ^{o}C
Isothermal Temperature Precision: ±0.1 ^{o}C
Thermo balance sensitivity: 0.1 µg
Temperature Sensitivity: 0.01 ^{o}C

	Solid/Liquid samples (RT - 750 ^{o}C)
NIT Calicut User	(a) Rs. 200/- (for 10 ^{o}C/min); (b) Rs. 50/- (extra for <10 ^{o}C/min)
External Academia Research institute User	(a) Rs. 500/- (for 10 ^{o}C/min); (b) Rs. 100/- (extra for <10 ^{o}C/min)
National lab User	(a) Rs. 750/- (for 10 ^{o}C/min); (b) Rs. 100/- (extra for <10 ^{o}C/min)
Industry User	(a) Rs. 1000/- (for 10 ^{o}C/min); (b) Rs. 100/- (extra for <10 ^{o}C/min)

Contact details:
Name : Ruther Tyson Lewis
Email ID : ruthertl@nitc.ac.in
Phone number : 9845965130

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : **3245421**

Chemistry Department

Name of the equipment : UV/VIS/NIR Spectrometer

Make & Model : Perkin Elmer, Lambda 750 L1903141

Source of funding : Plan Fund

Location: Room No : PG instrumentation Lab

Features of the equipment: It is widely used for qualitative and quantitative analysis in various fields like chemistry, pharma, food science and material science.

Description of Instrument

It is an analytical technique that measures the interaction of ultraviolet (UV), visible, and near infrared (NIR) light with a substance.

Measurement charges (with GST):

Internal	External Academic Institutes	National R&D Lab	Industry
30/- (Solid) 25/- (Liquid)	300/- (Solid) 200/- (Liquid)	350/- (Solid) 250/- (Liquid)	500/- (Solid) 400/- (Liquid)

Contact details:

Name : Vinay kumar

Email ID : **vinaykumar@nitc.ac.in**

Phone number : **9131541081**

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :3237540

Chemistry Department

Name of the equipment : Gas Chromatograph System (GC_1)

Make & Model : ThermoFisher Scientific & Trace 1610 GC

Source of funding : Plan Fund

Location: Room No : PG instrumentation Lab

Features of the equipment: Gas Chromatograph system with PTV Injector module, GSV-Injector module, FID module, TCD module and Auto Sampler.

Instrument technical description:
Advanced electronic gas control (EGC).
High performance oven.
Intuitive touch screen interface.
Enhanced sample handling with AI/AS 1610 auto sampler compatibility.
Sample Compatibility: Petrochemicals analysis, Environmental monitoring, food and flavour characterization, forensic science.

Measurement charges (with GST):

Internal	External Academic Institutes	National R&D Lab	Industry
75/-	200/-	200/-	500/-

Contact details:
Name : Vinay kumar
Email ID : **vinaykumar@nitc.ac.in**
Phone number : **9131541081**

Book through I-STEM : **https://www.istem.gov.in/**

I-STEM registration id :**3245527**

Chemistry Department

Name of the equipment : Fluorescence Spectrophotometer with accessories LS 55(230 V)

Make & Model : Perkin Elmer & LS 55

Source of funding : DST Govt. of India

Location: Room No : PG instrumentation Lab

Features of the equipment: It is useful for analysis, sensing, and in the development of new materials.

Description of Instrument

Designed for measuring fluorescence, phosphorescence, and chemiluminescence/bioluminescence of various sample types.

Measurement charges (with GST):

Internal	External Academic Institutes	National R&D Lab	Industry
25/-	200/-	250/-	400/-

Contact details:

Name : Vinay kumar

Email ID : **vinaykumar@nitc.ac.in**

Phone number : **9131541081**

Book through I-STEM : **https://www.istem.gov.in/**

I-STEM registration id :**3237541**

Chemistry Department

Name of the equipment : Electrochemical Work Station (EWS)

Make & Model : BAS Inc , CH1660E, Serial No.11177 CS-3A Cell Stand

Source of funding : Plan Fund

Location: Room No : PG instrumentation Lab

Features of the equipment: Used both in fundamental and applied research to gain an increased understanding of electrode processes, analytical chemistry, battery research, and corrosion research. Secondary applications include chemical synthesis and biology.

Instrument technical description:
Potentiostat/Galvanostat functionality.
Electrochemical Impedance Spectroscopy to measure the impedance of a system at different frequencies.
Investigating the effects of corrosion on materials.
Battery Technology Research.
Digital signal Generator (DSG).

Measurement charges (without GST):

Internal	External Academic Institutes	National R&D Lab	Industry
50/-	200/-	200/-	500/-

Contact details:
Name : Vinay kumar
Email ID : **vinaykumar@nitc.ac.in**
Phone number : **9131541081**

Book through I-STEM :
https://www.istem.gov.in/

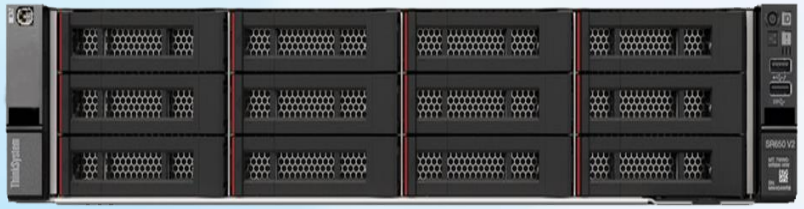
I-STEM registration id :**3245531**

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT (CSED)

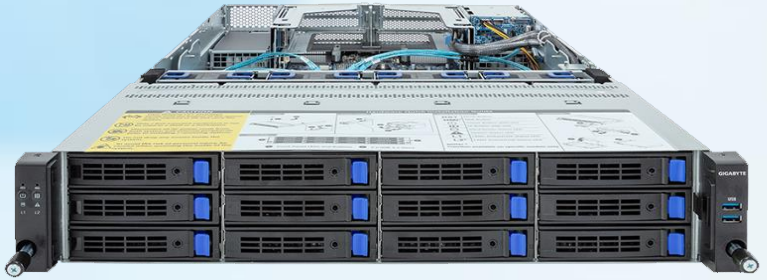
COMPUTER SCIENCE AND ENGINEERING DEPARTMENT (CSED)

Name of the equipment: **GPU Server**
Make & Model: **Dell PowerEdge R750/Lenovo Think System SR650/**: **Lenovo Think System SR650**
Source of funding: **Plan fund**
Location: **ITL 305**

I-STEM registration id: **3245580**



I-STEM registration id: **3245579**



I-STEM registration id: **3245581**

Features of the equipment:

- **Rack Server**
- **Processor - Intel Xeon Gold 5318Y 2.1g/ 64 bit Processor from Intel Xeon Silver 4310 2.10 GHz. /Processor -Intel Xeon Silver 4214R , 2.40 GHz.**
- **RAM - 128 GB and scalable up to 1TB / RAM - 128 GB, or more ECC DDR4, 3200MHz scalable up to 4TB / RAM - 92 GB, TruDDR4 2933MHz (1Rx8 1.2V) RDIM**
- **Storage - 4.8 TB / 2.4 TB 7.2K SAS 12Gb Hot Swap 512n HDD**
- **GPU Support - NVIDIA A40 48GB /NVIDIA A100 , 80GB/ GPU support - NVIDIA Tesla V100, 32 GB**

- **OS - Ubuntu 22.10**

Measurement charges (with GST):

Internal - Other Departments NITC	External Academic Educational Institutes	National R&D Labs	Industry
20 Rs per hour/GPU	50 Rs per hour/GPU	100 Rs per hour/GPU	200 Rs per hour/GPU

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT (ECED)

Electronics and Communication Department

Name of the equipment : Testbed for Advanced Wireless Communication System
Make & Model : NI Systems (India) Pvt. Ltd, HSN/SAC 90304000
Source of funding & Project ID : DST-FIST (Level-1), No.SR/FST/ET-I/2017/68 (C)
Location: Room No : ECED Block II, 206

Features of the equipment:
4x16 Multi Input Multi Output Transceiver System for wireless communication experimentation

Unique features/Measurement capabilities, if any: Lab view integrated hardware system where simulation studies of new wireless communication algorithms and their real-time transmission and reception through associated hardware

Measurement/Sample specifications:
Codes to be built using LabVIEW. Testing at 2.4 GHz.

Measurement charges (with GST):

NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
Rupees 2500 per Day	Rupees 5000 per Day	Rupees 5000 per Day	Rupees 10000 per Day

Contact details:
Name : Dr. SAMEER SM
Email ID : sameer@nitc.ac.in
Phone number : 0495-2286720

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3236926

Electronics and Communication Department

Name of the equipment : Microwave Synthesizer
Make & Model : Multiwave 3001 Microwave Synthesizer Anton Par
Source of funding & Project ID : DST SERB
Location: Room No : Project Lab, ECED Block II, 208

Features of the equipment:
Handle extreme conditions with temperatures up to 300°C and pressures up to 199 bar.
Advanced safety mechanisms
Unique features/Measurement capabilities, if any:
Prepare up to 8 samples at a time.
Individual pressure control for each vessel,
It offers contactless infrared temperature monitoring
Can be used for high-pressure applications such as metal, ceramic, and polymer digestion.
Measurement/Sample specifications:
Solvent Extraction, Evaporation, Sample Drying
Metal Oxide Synthesis

Measurement charges (with GST):

NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
500/cycle	1000/Cycle	2000/Cycle	2000/Cycle

Contact details:
Name : Dr. Suja K J
Email ID : suja@nitc.ac.in
Phone number : 9895127812

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3235285

Electronics and Communication Department

Name of the equipment : **RF Magnetron Sputtering System**
Make & Model : **M/s VR Technologies & Custom built system**
Source of funding & Project ID : **Plan-fund, Department of ECE**
Location: Room No : **Project Lab, ECED Block II, 208**

Features of the equipment:
Technique to deposit thin films on substrates
Co-sputtering of 3 targets with sputter down configuration
Compatible with both DC & RF power source

Unique features/Measurement capabilities, if any: NA
Measurement/Sample specifications: 5 samples (1cm x 1cm) or appropriate, in one process run.
Sputtering Targets: 2- and 3-inch Diameter

Measurement charges (with GST):

NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
300/run (excluding target usage cost)	1000/run (excluding target usage cost)	1000/run (excluding target usage cost)	1500/run (excluding target usage cost)

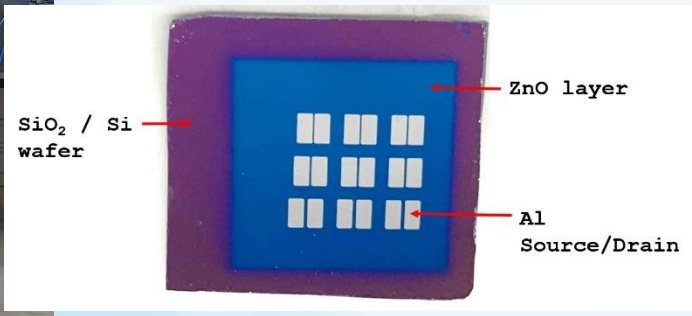
Contact details:
Name : **Dr. Lintu Rajan**
Email ID : **lintu@nitc.ac.in**
Phone number : **04952286718**

Book through I-STEM : **https://www.istem.gov.in/**

I-STEM registration id : 3236920

RESEARCH FACILITIES
Electronics and Communication Department

Name of the equipment : Thin film Coating Unit
Make & Model : VR Technologies, Bangalore
Source of funding & Project ID : SERB-SRG
Location: Room No : ECED Block II, 208
Features of the equipment:
Chamber: SS304 (300 x 400) D type
Vacuum: 10^{-6} mbar (TMP + Rotary pump)
Gas inlet: MFC 100 sccm (1)
Thermal mode: 200A, 10 V supply



Thin Film Transistor (TFT) fabricated using the facilities available at ECED

Unique features/Measurement capabilities, if any: NA

Measurement/Sample specifications:
Any metal, metal alloy (granules)

Measurement charges (with GST):

NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
300/hr (Excluding Material Charges)	1000/hr (Excluding Material Charges)	1000/hr (Excluding Material Charges)	1500/hr (Excluding Material Charges)

Contact details:
Name : Dr. Aswathi R Nair
Email ID : aswathirnair@nitc.ac.in
Phone number : 04952286736

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id : 3236921

ELECTRICAL ENGINEERING DEPARTMENT (EED)

ELECTRICAL ENGINEERING DEPARTMENT

Name of the equipment: Real time simulator
Make & Model: OPAL-RT Technologies ,OP5700

Source of funding & Project ID: TEQIP
Location: EED PG Lab(203)

Features of the equipment

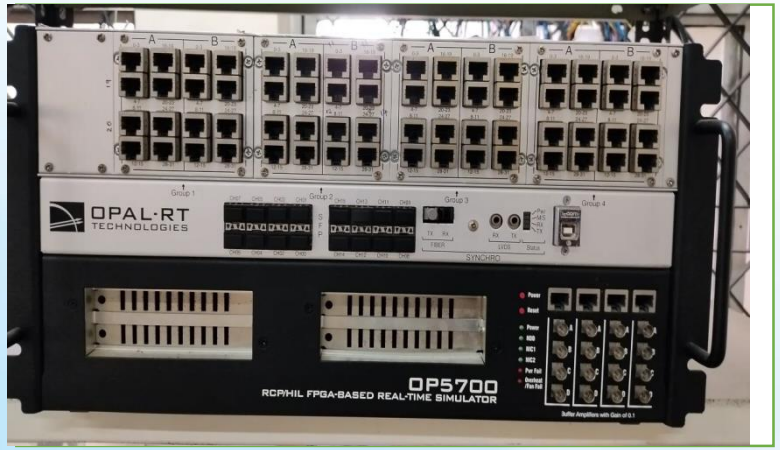
- To Interface models of Complex systems with actual hardware to run experiments that could have been costly risky or even impossible perform in actual system.

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:
Electrical Systems requiring Hardware-in-loop Study.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charges	Nil	1000	2000	5000



Contact details:
Dr.Kumaravel S
kumaravels@nitc.ac.in ,9645654204,
Dr. Sunitha R
rsunitha@nitc.ac.in, 9895325906
Dr. Gopakumar P
gopakumarp@nitc.ac.in, 8891636407

Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id:

ELECTRICAL ENGINEERING DEPARTMENT

Name of the equipment:MPD Single channel High end partial discharge measurement system
Make & Model: Omicron, MPD600,

Source of funding & Project ID: PLAN FUND
Location: Non-destructive testing lab

Features of the equipment

- MPD600 is a high end measurement and analysis system for Partial discharges.

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:
Oil filled samples
Cables

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charges	200	500	500	1000

Contact details:
Dr. Sindhu TK
tk_sindhu@nitc.ac.in, 9447921390

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id:

ELECTRICAL ENGINEERING DEPARTMENT

Name of the equipment: Programmable Articulated Robotic Manipulator with accessories
Make & Model: ABB IRB 1200 M 2004

Source of funding & Project ID: DST-FIST
Location: EED PG LAB (102)

Features of the equipment

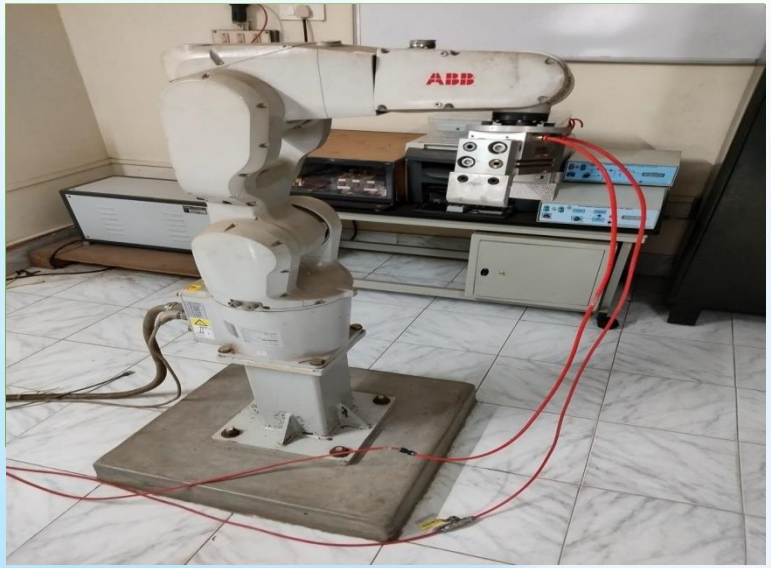
- It is used for the pick and place operation (Robotic Arm)

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:
Robotic Arm based material handling
Maximum sample: One at a time

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charges	200	700	700	2000



Contact details:
Dr. Ashok S
ashoks@nitc.ac.in, **9446647271**

Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id:

ELECTRICAL ENGINEERING DEPARTMENT

Name of the equipment: 3 DOF HELICOPTER
Make & Model: Quanser

Source of funding & Project ID: PLAN FUND
Location: Advanced Control System Lab
Features of the equipment

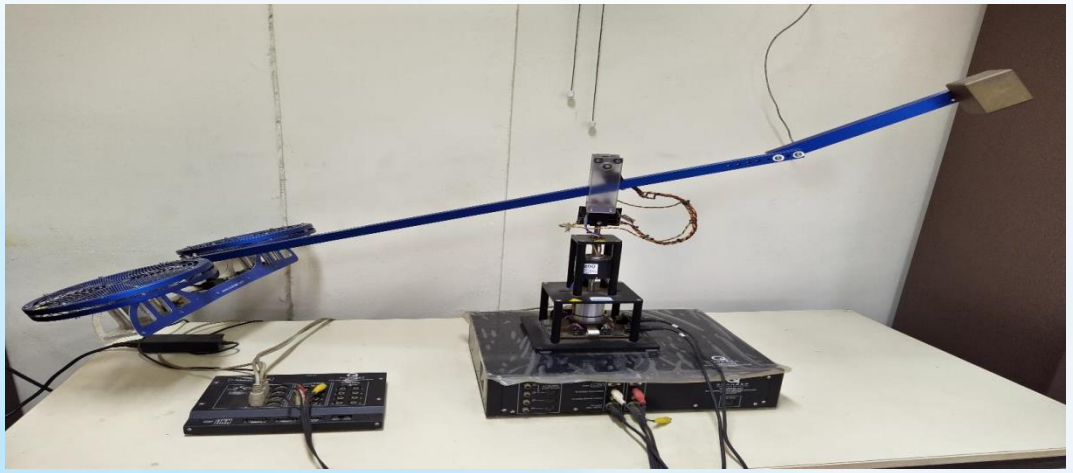
- Derivation of simple dynamic model using system parameters

State-space representation ,State feedback control
LQR control design, Control parameter tuning

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Test charges	Nil	500	500	1000



Contact details:
Dr. Mija SJ
mija@nitc.ac.in, 9446336388
Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id:

MECHANICAL ENGINEERING DEPARTMENT (MED)

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment: Multi-point BET Surface area analyser
Make & Model: Smart Instruments, Smart SORB-93

Source of funding & Project ID: Plan Fund
Location: Ceramics and Composites Lab, Production Engineering Block

Features of the equipment
This physical characterization technique provides quantitative data on the specific surface area and pore volume of the solid materials.

Unique features/Measurement capabilities, if any
It determines the surface area at a single point and it can be enhanced for measuring multi-point surface area and total pore volume analysis with different gas mixture percentages.

Measurement/Sample specifications:
Powders of particle size less than 2 mm

Measurement charges (with GST):
Rs. 100-1000/sample (User charges vary depending on the type of analysis/testing.

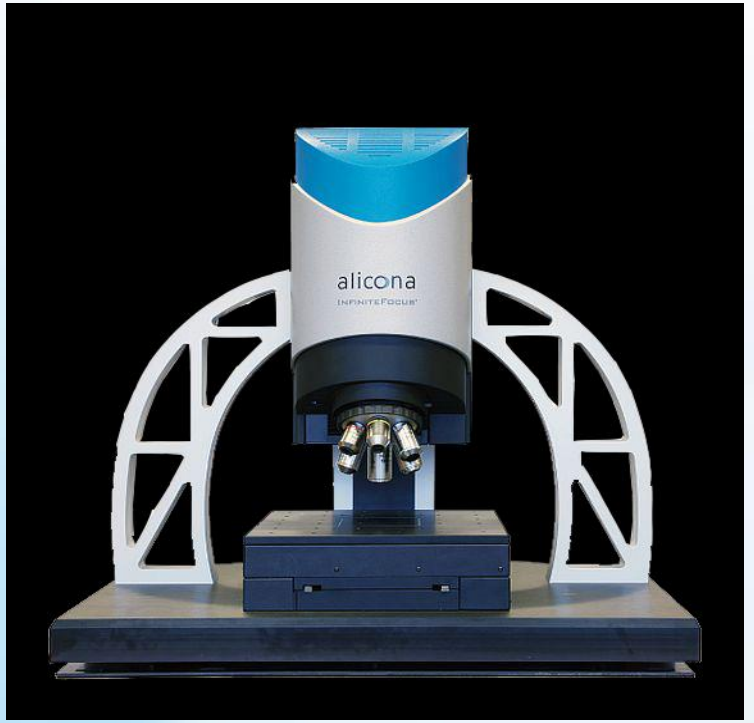
Contact details:
Name, Email ID and Phone number
Dr. Mohammed Rashad K, rashad@nitc.ac.in, 9744899126
Dr. Jinu Paul, jinupaul@nitc.ac.in, 9002279620
Technical staff: Mr. Sanal P R, sanal@nitc.ac.in, 9497186559

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id: 3224875

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : 3D OPTICAL PROFILOMETER
Make & Model : ALICONA Model- Infinite Focus G5
Source of funding & Project ID : DST- FIST
Location: Room No : DIST- FIST Centre



Description of the equipment: Capable of performing non-contact 3D surface roughness, micro geometry, form measurements, etc. Also, this instrument can generate, capture and display point cloud of high density, registered true colour information.

Unique features/Measurement capabilities, if any:

- Travel range in XY 100 mm X 100 mm motorized
- Travel range in Z -100 mm motorized
- 6 Objectives 2.5X, 5X, 10X, 20X, 50X, 100X
- Min measurable radii 1 µm
- Finest lateral resolution 0.44 µm for 100x objective 3D rotation unit for capturing 3D data points

Measurement/Sample specifications: Metallic/composite/alloys etc.,
Maximum size usually limited 100mm x 100mmx100mm
Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Per scan (consist of 20 indentations or 3 hours)	Rs. 250	500 + 18%GST Rs. 590	500 + 18%GST Rs. 590	500 + 18%GST Rs. 590

Contact details:
Name : Mr. Hari Krishnan (Staff-in-Charge)
Email ID : **harikrishnank@nitc.ac.in**
Phone number : 7012086946

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3224898**

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : NANO INDENTER
Make & Model : Hysitron TI Premier
Source of funding & Project ID : DST- FIST
Location: Room No : DIST- FIST Centre

Description of the equipment: This system performs indentation, scratch and wear studies capable of studying mechanical properties of thin films, soft samples, metals, etc.

Unique features/Measurement capabilities, if any:

- High-resolution in-situ SPM imaging that enables precise test positioning accuracy (±10 nm) and observation of post-test deformation behavior
- Custom-engineered enclosure with an integrated anti-vibration system to provide nanoscale characterization capabilities in non-ideal environments
- Sensitive force and displacement noise floors (75 nN, 0.2 nm) for unprecedented accuracy,
- intelligently designed software with enhanced automated testing routines and an intuitive user interface
- Easily adaptable system to meet specific research needs, from soft polymers to ceramic thin films.

Measurement/Sample specifications: Metallic/composite/alloys etc.,
Maximum size usually limited 10mm x 10mmx10mm

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Per slot (consist of 20 indentations or 3 hours)	Rs. 2000	4000 + 18%GST Rs. 4720	4000 + 18%GST Rs. 4720	5000 + 18%GST Rs. 5900

Contact details:
Name : Mr. Hari Krishnan (Staff-in-Charge)
Email ID : **harikrishnank@nitc.ac.in**
Phone number : 7012086946

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3229300**

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : MICRO MACHINING CENTRE AND ACCESSORIES
Make & Model : MIKROTOOLS Pte Ltd,DT-110 LE-311
Source of funding & Project ID : Institutional Funding
Location: Room No : Micro Machining centre , Production Block
Description of Instrument: The major facilities available in the micro machining centre are Micro Turning ,Micro Milling, Micro Drilling in which spindle speed varies from 10000 rpm - 60000rpm

Instrument Technical Description and Major Specifications :

- Rotational Speed 10000-60000rpm
- Frequency variation 167-1000Hz
- Maximum Power-1.3kW
- Tool holding dia. Limited up to 100mm

Application of Instrument: Micro Turning, Micro Milling, Micro Drilling
Type of sample Required: Metals and alloys
Maximum size usually limited 100mm x 100mm

User charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Machining	200/Hour	200/Hour	200/Hour	200+18 % GST (236/-)

Contact details:
Name :SANAL PR Staff in Charge(PE Lab)
Email ID : sanal@nitc.ac.in
Phone number :0495-2286450,9497186556

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3224890**

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : CNC Die Sinking EDM
Make & Model : Electronica
Source of funding & Project ID : **Institutional Funding**
Location: Room No : Production Engineering Lab

Description of Instrument: CNC Die Sinking EDM machine is a precision tool that uses electric sparks to erode material from a workpiece, creating complex shapes and intricate designs in metal dies

Instrument Technical Description and Major Specifications :

Longitudinal travel (x) - 400mm

Transverse travel (y) - 300mm

Max permitted load on the table - 1000kg

Max electrode weight - 50kg or more without c axis 25kg or more with c axis

Max work piece height - 250mm

Application of Instrument : Tool die making, Injection Moulding, Precision component manufacturing, Blind cavities, Blind keyways, Internal splines

User charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Machining	200/Hour	200/Hour	200/Hour	200+18Gst (236/-)

Contact details:

Name : SANAL PR Staff in Charge(PE Lab)
Email ID : sanal@nitc.ac.in
Phone number :0495-2286450,9497186556

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3224899**

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : KINOVA GEN3 ROBOT
Make & Model : KINOVA , CANADA GEN 3 & C-45652
Source of funding & Project ID:
Location: Room No : Mechatronics/Robotics laboratory, CADCAM Centre
Description of the equipment: The KINOVA Gen3 is a versatile and reliable robot manipulator for industrial robotics training and education.

Unique features/Measurement capabilities, if any:

- 6 degree of freedom
- Operating radius of 891 mm
- Weight of instrument is 7.2 Kg
- maximum Payload of 4 KG

Application of Instrument:

- Used for material handling.
- Robotic welding and machine vision.
- C NC machine tending and other FMS operation.

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Per hour	Rs. 1000	Rs. 1000 + 18%GST Rs. 1180	Rs. 1000 + 18%GST Rs. 1180	Rs. 1000 + 18%GST Rs. 1180

Contact details:
Name : kksasi (Staff-in-Charge)
Email ID : kksasi@nitc.ac.in
Phone number :0495-2286475, 9447635438

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3236734**

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : CNC VERTICAL MACHINING CENTER
Make & Model : Bharat Fritz Werner Ltd.-Agni BMV45 TC24 4-axis vertical machining centre
Source of funding & Project ID: DST- FIST
Location : DIST- FIST Centre

Description of the equipment: CNC machining of complex geometries using codes written explicitly or generated by using Master cam software

Unique features/Measurement capabilities, if any:

Three axes XYZ travel (X – 600mm, Y – 450mm, Z – 500mm)
Clamping area 450 x 900 mm^2
Position accuracy +/- 0.005mm
Max. Tool diameter 75 mm
Max. Tool length 250 mm

Measurement/Sample specifications:

Metallic/composite/alloys etc.,

Measurement charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Per hour	Rs. 250	250 + 18%GST Rs. 295	250 + 18%GST Rs. 295	250 + 18%GST Rs. 295

Contact details:
Name : Mr. Unni Krishnan(Staff-in-Charge)
Email ID **kishan@nitc.ac.in**
Phone number : 9495257522

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :3224889

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : **Variable compression ratio multifuel engine test rig**
Make & Model : Kirloskar, Engine No. 18.1324/1300209
Source of funding : Plan Fund
Location : Heat Engines Lab

- **Description of Instrument :** The engine is a single cylinder, four stroke, water cooled with maximum 5 kW output at 1500 RPM at normal compression ratio. The compression ratio can be varied from 14:1 to 18:1 for diesel/ bio-diesel operation.
- **Type of Sample Required for Analysis / Testing :** Diesel and alternative liquid fuels (like bio-diesel)
- **Types of Analysis / Testing :** Performance (Load Test), Combustion Analysis Charts (P-Θ, P-V etc), Heat Balance and Emission Test for constant or variable Compression Ratio.

User charges :

Sl. No	Type of Analysis/Testing	Internal -within Department of MED	Internal - Other Departments NITC	External Academic Educational Institutes	National Labs / Industry
1	Performance (Load Test), Combustion Analysis Charts (P-Θ, P-V etc), Heat Balance and Emission Test for constant or variable Compression Ratio.	Rs. 500/ sample + GST	Rs. 500/ sample + GST	Rs. 1000/ sample + GST	Rs. 3000/ sample + GST

Contact details:
Name : Pradeep Kumar KK
Email ID : kkp69@nitc.ac.in
Phone number : 7560963041

Book through I-STEM : https://www.istem.gov.in/
I-STEM registration id : 3224886

MECHANICAL ENGINEERING DEPARTMENT

Name of the equipment : COMPUTER CONTROLLED HYDRAULIC SERVO 1000KN UNIVERSAL TESTING MACHINE

Make & Model : JINAN WAW1000E

Source of funding & Project ID : Institutional Funding

Location: Room No : Production Engineering Lab, Material Testing Centre

Description of Instrument :Computer-controlled 1000kN hydraulic servo universal testing machine for versatile material testing (tension, compression, bending, etc.)

Instrument Technical Description and Major Specifications :

Max. load: 1000kN

Load range: 0-100kN, 0-200kN, 0-500kN & 0-1000kN

Control Mode & precision: Load rate, stress rate, displacement rate, strain rate control, load hold mode (short duration) & 1%

Displacement resolution: 0.01mm

Piston speed: 0.5 – 80 mm/mi

Application of Instrument : Mechanical properties testing (Tensile, compression, bending

Type of sample Required: As per Standard

User charges (with GST):

Sl. No	Test Details	NIT Calicut (Internal Users)	Academic Institute	R&D Institute	Industry
1	Machining	350/sample	1000/sample	1000/sample	2400+18%GST (2832)

Contact details:

Name :SANAL PR Staff in Charge(PE Lab)

Email ID : sanal@nitc.ac.in

Phone number :0495-2286450,9497186556

Book through I-STEM : https://www.istem.gov.in/

I-STEM registration id :**3224877**

MATERIALS SCIENCE AND ENGINEERING DEPARTMENT (MSED)

MATERIALS SCIENCE AND ENGINEERING DEPARTMENT

Name of the equipment: Field Emission Scanning Electron Microscope
Make & Model: ZEISS, Gemini 1 Sigma 300
Source of funding & Project ID: *FIST &SR/FST/ET-I/2021/840*
Location: Ground floor of MSED,NITC

Features of the equipment

- **High resolution imaging: 0.8nm at 15kV, 1nm at 1kV**
- **Field emission gun(FEG)for high brightness & stability**
- **Gemini 1 column for high-resolution imaging& analysis**
- **Energy-dispersive spectroscopy(EDS) for elemental analysis**

Measurement/Sample specifications:

- **Maximum 150mm diameter,50mm height**
- **We can analyze both conducting and non conducting materials including biological samples**

Measurement charges in ₹ (plus 18% GST):

SEM+EDS	SEM+EDS Mapping	SEM Only	EDS Only	EDS Map only	Gold Coating
2000	2250	1500	1000	1250	250

Contact details:
Jayadevan P J, Akshay V
Email: semcentre@nitc.ac.in
Phone 049586128

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id:3237397

MATERIALS SCIENCE AND ENGINEERING DEPARTMENT

Name of the equipment: Field Emission Scanning Electron Microscope
Make & Model: HITACHI &SU660
Source of funding & Project ID: *Plan Fund*
Location: Ground floor of MSED,NITC

Features of the equipment

- **Electron gun : Tungsten Schottky Emission Electron Source**
- **Resolution : 1.2 nm/30 kV, 3.0 nm/1kV**
- **Probe Current: 1pA** ~ 200 nA

Measurement/Sample specifications:

- **Maximum 150mm diameter,40mm height**
- **We can analyze both conducting and non conducting materials including biological samples**

Measurement charges in ₹ (plus 18% GST):

SEM+EDS	SEM+EDS Mapping	SEM Only	EDS Only	EDS Map only	Gold Coating
2000	2250	1500	1000	1250	250

Contact details:
Gaurav Pandey
Email:semcentre@nitc.ac.in
Phone 049586128

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id:3213557

MATERIALS SCIENCE AND ENGINEERING DEPARTMENT

Name of the equipment: Universal Testing Machine (UTM)
Make & Model: Shimadzu AGS-X 10kN
Source of funding & Project ID: *Plan Fund*
Location: First floor of MSED,NITC

Features of the equipment

- **Tension, compression, tear, and shear testing.**
- **Precise and accurate measurements of force, displacement, and strain.**

Measurement/Sample specifications:

- **Sample type: metal, Film, Ceramics etc.**
- **Sample Shape : For tensile test "dog bone" or "dumbbell" shaped samples as per ASTM standard**

Measurement charges in ₹:

Internal	External Academic Institutes	National R&D Lab	Industry	Internal
200/- per sample	500/- per sample + 18% GST	500/- per sample + 18% GST	1000/- sample + 18% GST	200/- per sample

Contact details:
Anurag C (ST)

Email: anuragc@nitc.ac.in
Phone 0494-2886524

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id: 3245790

DEPARTMENT OF PHYSICS

Department of Physics

Name of the equipment: X-Ray Diffractometer
Make & Model: Rigaku & SmartLab SE
Source of funding & Project ID: DST-FIST
Location: Room 010-A, Dept. of Physics
Features of the equipment:
X-ray source: Cu (Wavelength: 1.54 Å)
Operation mode: theta-theta
Scanning range: up to 160°
Software for operation, data acquisition and processing
Temperature range: RT to 1200 °C
Unique features/Measurement capabilities, if any
Grazing incidence XRD for polycrystalline and epitaxial thin films Reflectivity, rocking curve, and RSM analysis in thin films
Measurement/Sample specifications: Powder samples, polycrystalline and epitaxial thin films

Measurement charges (with GST):

Sl. No.	Test Details	NIT Calicut Internal Users (per sample)	Academic Institute (per sample)	R&D Institute (per sample)	Industry (per sample)
1	Powder	Rs. 200	400 + 18%GST Rs. 472	800 + 18%GST Rs. 944	1200 + 18%GST Rs. 1416
2	GIXRD	Rs.400	800 + 18%GST Rs. 944	1600 + 18%GST Rs. 1818	2400 + 18%GST Rs. 2832
3	SAXS	Rs.400	800 + 18%GST Rs. 944	1600 + 18%GST Rs. 1818	2400 + 18%GST Rs. 2832
4	Temperature Variant XRD	Rs.400	800 + 18%GST Rs. 944	1200 + 18%GST Rs. 1416	2000 + 18%GST Rs. 2360

Contact details:
Name :(Staff-in-Charge XRD)
Email id : anjalic@nitc.ac.in
Phone No. : 8281746706

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id: **3245488**

Department of Physics

Name of the equipment: Solar Simulator
Make & Model: Photo Emission Tech & SS50AAA-EM
Source of funding & Project ID: BRNS
Location: Room PH010, Dept. of Physics

Features of the equipment:
Used for characterization of solar cells. The intensity of light from the solar simulator is calibrated using a standard photodetector.

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:
solar cells

Measurement charges (with GST):

Sl. No.	Test Details	NIT Calicut Internal Users (per hour)	Academic Institute (per hour)	R&D Institute (per hour)	Industry (per hour)
1	Solar cell characterization	Rs. 100	500 + 18%GST Rs. 590	500 + 18%GST Rs. 590	1000 + 18%GST Rs. 1180

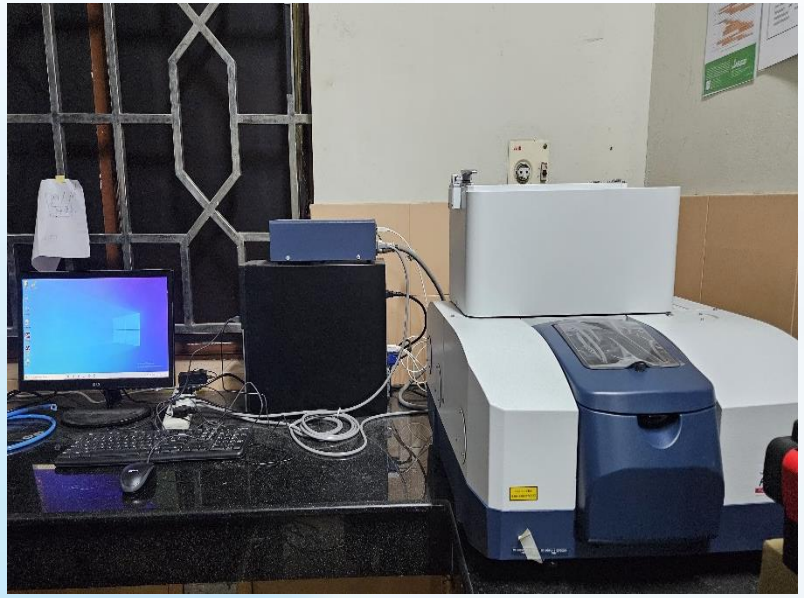
Contact details:
Name : Sreelakshmi P (Staff-in-Charge)
Email id : sreelakshmip@nitc.ac.in
Phone No. : 8921855165

Book through I-STEM: https://www.istem.gov.in/

I-STEM registration id: 3245497

Department of Physics

Name of the equipment: FTNIR
Make & Model: JASCO
Source of funding & Project ID: NITC Plan Fund
Location: Room PH102, Dept. of Physics



Features of the equipment:
The FT/IR-6X FTIR spectrometer with a 28° Michelson interferometer with a diode timing laser and configurable optical system.

Unique features/Measurement capabilities, if any
FT/IR-6X spectrometer with options such as full vacuum, gold-coated optics, rapid scan, and step scan.

Measurement/Sample specifications:
Used for the molecular analysis of materials.

Measurement charges (with GST):

Sl. No.	Test Details	NIT Calicut Internal Users (per sample)	Academic Institute (per sample)	R&D Institute (per sample)	Industry (per sample)
1	FTIR spectroscopy	Rs. 50	500 + 18%GST Rs. 590	500 + 18%GST Rs. 590	1500 + 18%GST Rs. 1770

Contact details:
Name : Sreelakshmi P (Staff-in-Charge FTNIR)
Email id : sreelakshmip@nitc.ac.in
Phone No. : 8921855165
Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id: 3245489

Department of Physics

Name of the equipment: Nd:YAG Laser
Make & Model: Spectra Physics & Quanta Ray INDI-40-10
Source of funding & Project ID: TEQIP
Location: Laser and nonlinear optics lab, Dept. of Physics

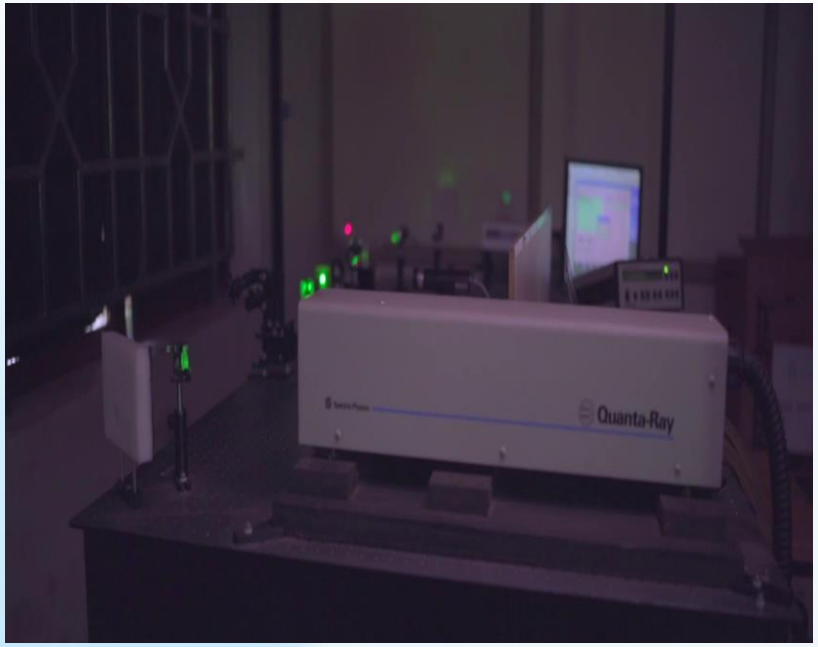
Features of the equipment:
Nd YAG pulsed laser with wave length 1034 nm and 532 nm
Pulse width 7ns, Beam diameter 10mm

Unique features/Measurement capabilities, if any

Measurement/Sample specifications:
Laser ablation
Surface modification
nonlinear characterization

Measurement charges (with GST):

Sl. No.	Test Details	NIT Calicut Internal Users (per hour)	Academic Institute (per hour)	R&D Institute (per hour)	Industry (per hour)
1	Laser beam supply	Rs. 3000	8000 + 18%GST Rs. 9440	10000 + 18%GST Rs. 11800	15000 + 18%GST Rs. 17700



Contact details:
Name : Sreeraj P (Staff-in-Charge Nd:YAG)
Email id : sreerajp@nitc.ac.in
Phone No. : 9995882692

Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id: 3245475

Department of Physics

Name of the equipment: Magee Scientific Aethalometer
Make & Model: Aerosol Magee Scientific & AE33
Source of funding & Project ID: NITC Plan Fund
Location: AOI Lab, Dept. of Physics

Features of the equipment:
Optical Analysis of BC with continuous collection of aerosol on filter. Simultaneous measurement of attenuation of transmitted light at wavelengths 370, 470, 520, 590, 660, 880, 950 nm.

Unique features/Measurement capabilities, if any
Real time/ online TC/BC/EC/OC and BrC analysis with Carbonaceous Aerosol Speciation System

Measurement/Sample specifications:
Air Quality Monitoring, Health Effects, Climate Change Research,
Field Measurement Projects, Emission Testing

Measurement charges (with GST):

Sl. No.	Test Details	NIT Calicut Internal Users (per day)	Academic Institute (per day)	R&D Institute (per day)	Industry (per day)
1	Atmospheric aerosol (field measurements), to be operated by NIT Calicut experts only	Rs. 100/day for student project or 1000/day for sponsored R&D project+ filter consumable charges + applicable operator expenses	1000 + 18%GST Rs. 1180 per day + filter consumable charges + applicable operator expenses	1000 + 18%GST Rs. 1180 per day + filter consumable charges + applicable operator expenses	3000 + 18%GST Rs. 3540 per day + filter consumable charges + applicable operator expenses

Contact details:
Name: Devamanas Xavier (Staff-in-Charge)
Email id: devamanasxavier@nitc.ac.in
Phone No.:8848285083

Book through I-STEM: https://www.istem.gov.in/
I-STEM registration id: 3245490

THANK YOU