



ATAL INCUBATION CENTRE

JYOTHYINSTITUTE OF TECHNOLOGY FOUNDATION

Sophisticated Instrument Facility at Incubation Centre

◆ CATALOGUE ◆

ATAL INCUBATION CENTRE – JYOTHY INSTITUTE OF TECHNOLOGY FOUNDATION

Sophisticated Instrumental Facility at Incubation Centre

AIC-JITF-SIF is equipped with different sophisticated analytical equipments for meeting the needs of researchers in all areas of Science and Technology. Any individual researcher or group of researcher from any academic institutions or Industrial R&D or Industry can utilize the services of these analytical equipment facilities on nominal charges. AIC-JITF Instrument facility is open for everyone keeping in view the inability of small educational institution and industries to procure and maintain sophisticated analytical instruments. Some high-end specialised instruments / facilities housed in the SIF would be charged as per usage prevailing rates and discretion of the management. Details of the equipment housed in the SIF are detailed below:

1. Thermo Scientific Heracell 150L CA2 Incubator
2. Sorvall ST1R Plus Refrigerated Centrifuge
3. Thermo Scientific Applied Biosystem Quant Studio 5 Rt-PCR System
4. NGC Quest 100 Plus Chromatography
5. Fermentor Model LFS-5
6. Multimode Reader with TRF Synergy HTX-S1 LFTA
7. Shimadzu UV-VIS Spectrophotometer Uv-1780 (1900i)
8. Artec Space Spider 3D Scanner
9. Elisa Reader And Elisa Washer
10. Probe Sonicator
11. Mettler Analytical Weighing Balance
12. Conductivity Meter
13. PH Meter
14. Autoclave: 98L Capacity
15. Humidity Chamber
16. Milli Q Water System
17. -82°C Freezers
18. Viscometer
19. BSL-2

1. THERMO SCIENTIFIC HERACELL 150L CO2 INCUBATOR

CO2 150L, Electro Polished Stainless steel interior chambers provide the ideal in vitro environmental. Clean reliable and easy to use, they protect valuable samples while optimizing cell growth with fast recovery characteristics and convenient touch screen user interface.

SPECIFICATIONS:

- Capacity: 5.3cu.ft, 150L
- Chamber material: electro polished stainless steel
- Dimension: 30.8x25.1x24.1
- Temperature: ambient +3°C - 55°C
- Relative humidity: ≤90% at 37°C
- Humidity source: integrated water reservoir
- CO2 range: 0-20%
- Voltage: 230V

APPLICATIONS:

- CO₂ incubator is a device designed to copy the cells' natural environment by controlling physical parameters such as the temperature, humidity, CO₂ and O₂ levels for the optimum growth and development of cells.
- CO₂ incubator is to maintain an optimal environment for cell growth, by providing carbon dioxide control in a humidified atmosphere with constant temperature.



2. SORVALL ST1R PLUS REFRIGERATED CENTRIFUGE

Ergonomic design, standard high contrast user interface for up to 6 saved programs with simple push-button operation for routine applications. With capacity up to 4 L, including 196 x 5/7 ml blood tubes and 40 x 50 ml conical tubes, Auto Lock for fast rotor exchange and 11 available rotors to choose from. Floor standing unit save bench space.

SPECIFICATIONS:

- Max capacity: 4 x 400ml, 6 x 600ml,
- Max speed: 15200rpm
- Control system: microprocessor
- Temperature: -10°C to +40°C
- Run time: Max 9h, 59min.
- Rotors: Swing bucket rotor, Fixed angle rotor

APPLICATIONS:

- Sample pelleting
- Sedimentation
- Preparation
- Purification



3. THERMO SCIENTIFIC APPLIED BIOSYSTEM QUANT STUDIO 5 RT-PCR SYSTEM

The Applied Biosystems QuantStudio 5 Real-Time PCR System is designed for users who need superior performance, maximum dye versatility, the QuantStudio 5 96-well system enables improved data accuracy and sensitivity for a broad range of genomic applications. The QuantStudio 5 system also offers the built-in software features of electronic record security and prevention of unauthorized instrument access to assist with 21 CFR Part 11 compliance.

SPECIFICATIONS:

- Sample capacity: 96wells
- Reaction volume : 10 - 100 μ l
- Excitation source: bright white LED
- Detection range: 450-680nm/500-730nm
- Multiplexing: up to 6 targets
- Temp zone function:6 veriflex zones max
- Temperature uniformity: 0.4 $^{\circ}$ C
- Run time: \leq 30 min run

APPLICATIONS:

- Gene analysis
- Protein analysis
- Mutation detection
- mRNA and non-coding RNA analysis
- Biomarker analysis
- Taqman assays for disease research



4. NGC QUEST 100 PLUS CHROMATOGRAPHY

NGC quest 100 plus chromatography is Protein purification system includes 100ml/min pumps, multi wavelength (UV/Vis) and conductivity detection and automated sample injection for purification of protein, bio fraction collector 100/240V and small sample loop kit of 100,250,500 μ l peek loops. large sample was 1,2,5ml (1-5ml of mini ion exchange column, pump10Mpa)

FEATURES:

- Automated 100 ml/min pumps provide accurate buffer gradients for high-resolution separation of biomolecules.
- Automated sample injection using fixed or dynamic loops.
- Gradient separations at different pH values using the mixer module, for rapid method development.
- Simultaneous four-wavelength detection of proteins, peptides, nucleic acids, and chromophores, with conductivity measurement and pH detection.
- Compatibility with the NGC Fraction Collector and BioFrac Fraction Collector for sample collection.

NGC Multi-wavelength Detector Module (190-800nm)

NGC Sample Inject Valve Module

APPLICATIONS:

- Preparative chromatography
- Protein purification and isolation



5. FERMENTOR MODEL LFS-5

The fermenter offered is a comprehensive fermentation system designed for Microbiological and Biotechnological research and development works. The modular structure of the system is suitable for mass cultivation of microorganism bt batch fermentation or by continuous culture. The system ensures a high degree of reliability by its simple mode of operation and modular structure. The basic unit comprises of 7L steel vessel stainless, top plates ports of Ph electrode, antifoam sensor, Do2 electrode, air inlet.



SPECIFICATION:

- Speed: 100-1000 rpm
- Max capacity: 7L
- Min capacity: 5L
- Rated capacity : 180V

APPLICATIONS:

- Biological production like vaccines and hormones
- Production of alcoholic biofuels and other beverages such as beer, wine, liquors, and ethyl alcohol.
- Mass cultivation of microbiological and Bio technological research products.

6. MULTIMODE READER WITH TRF SYNERGY HTX-S1 LFTA

A microplate reader that can detect two or more applications is considered a multi-mode plate reader. Typically the system can detect absorbance, luminescence, fluorescence, and even make more specialized fluorescence measurements like time-resolved fluorescence (TRF) .

SPECIFICATIONS:

- Absorbance : 96 well plates
- Temp : +4C to 45C
- Shaking : orbital
- Measurement speed: 96 well plates in 15 sec
- Light source: LED

APPLICATIONS:

- Cell based assays
- Biomarker Assays
- Kinetic assays
- Microvolume nucleic acid & protein quantification with Take3 Microvolume Plate
- Quantification of different biological and chemical assays



7. SHIMADZU UV-VIS SPECTROPHOTOMETER UV-1780 (1900i)

UV-Vis spectroscopy is an analytical technique that measures the amount of discrete wavelengths of UV or visible light that are absorbed by or transmitted through a sample in comparison to a reference or blank sample. It works on Beer-Lambert law where it measures the intensity of light passing through a sample solution in a cuvette and compares it to the intensity of the light before it passes through the sample.

SPECIFICATIONS:

- Power voltage: 100VAC to 240VAC
- Power: 140 VA
- Frequency: 50/60 Hz
- Wavelength accuracy: ± 0.05 nm at D2 peak 656.1 nm, ± 0.3 nm for entire range
- Wavelength repeatability: ± 0.1 nm
- Wavelength slew rate: About 14,500 nm/min
- Wavelength scanning speed: 3,000 to 2 nm/min 29,000 nm/min when survey scanning

APPLICATIONS:

- Concentration determination of nucleic acids – DNA and RNA
- Analysis of nucleic acids, proteins and bacterial cell cultures



8. ARTEC SPACE SPIDER 3D SCANNER

A new and enhanced precision instrument for CAD users and engineers, Artec Space Spider is a high-resolution 3D scanner based on blue light technology. It is perfect for capturing small objects or intricate details of large industrial objects in high resolution, with steadfast accuracy and brilliant color. The scanner's ability to render complex geometry, sharp edges and thin ribs sets our technology apart. It is an ideal industrial 3D scanner for high resolution capturing of objects such as molding parts, PCBs, keys, coins or even a human ear, followed by the export of the final 3D model to CAD software. In this powerful 3D scanner, the technology has been honed to perfection to ensure the best possible quality of scans and a truly robust device.

SPECIFICATIONS:

- Scanner type: handheld
- 3D point accuracy: 0.05mm
- 3D resolution : 0.1mm
- 3D accuracy distance : 0.05mm + 0.3mm/m
- Data processing algorithm: geometry & texture base
- Light source: Blue LED
- 3D exposure time :0.0002sec
- Closest & furthest range: 90x70mm, 180x140mm

APPLICATIONS:

- All Industries
- Reverse Engineering
- Quality Inspection
- Industrial Design and Manufacturing
- Health care
- Art and design



9. ELISA READER AND ELISA WASHER

An ELISA reader is an instrument that is used to read the fluorescent, chemiluminiscent, or chromogenic response of the ELISA in a 96-well plate. The microplate washer is a medical device specially used for cleaning the microplate and it is mainly used to clean some residues after the detection of the ELISA plate, thereby reducing the error caused by residues in the subsequent detection process.

SPECIFICATIONS:

- Indication stability: $\pm 0.002A$
- Wavelength indication error: $\pm 3nm$
- Wavelength repeatability: $\pm 1.5nm$
- Half width: $\leq 12nm$
- Optical density repeatability: $\leq 0.1\%$
- Sensitivity: $\geq 0.01mg/l$
- Reading speed : 3 sec/96
- Environment temp: 10 to 40C
- Relative humidity: $\leq 80\%$
- Atmospheric pressure: 86Kpa to 160Kpa

APPLICATIONS:

- Enzyme Linked Immunology Assay for the qualitative and quantitative analysis , which is used widely for immunoassay in clinical lab, blood center, hospital, university, institute or other academic organization.



10. PROBE SONICATOR

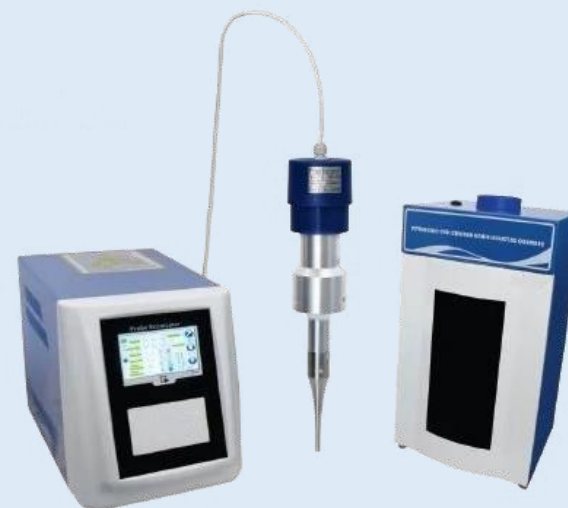
Probe sonicator is a multifunction and multipurpose instrument that utilizes ultrasonic cavitation in liquid. It can be used for breaking many kinds of cells, bacteria, viruses, animal and plants tissues, also for emulsification and separation, homogenization, extraction, defoaming, cleaning, preparation of nanomaterials, dispersion and accelerated chemical reactions. Widely used in biology, medicine, agriculture, chemistry, materials science, pharmaceutical and other fields of teaching, research, production. This machine consists of ultrasonic generator, transducer components and sound proof box, middle part connected by the cable.

SPECIFICATIONS:

- Model: LABMAN
- Process capacity: 0.5-500ml
- Probe dia standard: 6mm & 2mm
- Display function: Temperature, power, time
- Input method: Touch screen control
- Power supply: AC 220V
- Temperature range: 0-99°C

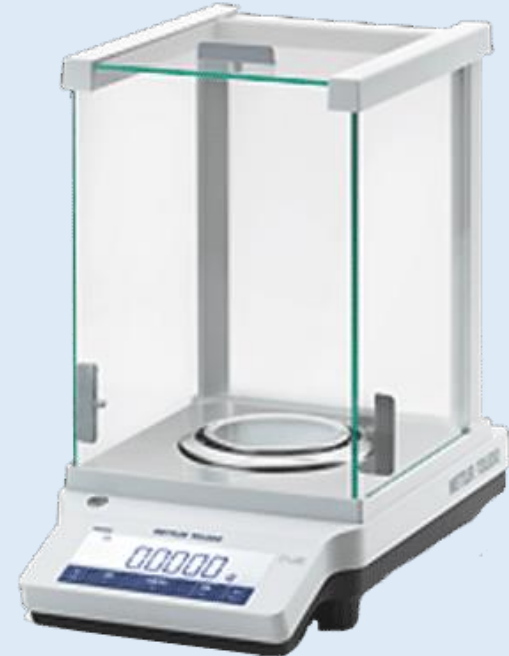
PROBE:

Probes (mm)	Ø2	Ø6
Process capacity(ml)	±0.5-5	±10-100
Power ratio (1-100%)	1-40%	1-70%



11. METTLER ANALYTICAL WEIGHING BALANCE

Analytical balances are highly sensitive lab instruments designed to accurately measure mass.



12. CONDUCTIVITY METER

Conductivity meter allows us to measure the level of conductivity in solutions. Conductivity is an ability of materials (solutions, metals or gases) to pass an electric current.



13. pH Meter

A pH meter is a scientific instrument that measures the hydrogen ion activity in water-based solutions, indicating its acidity or alkalinity expressed as pH.



14. AUTOCLAVE: 98L CAPACITY

An autoclave is a machine that provides a physical method of sterilization by killing bacteria, viruses, and even spores present in the material put inside of the vessel using steam under pressure. In this the water boils at 121°C at the pressure of 15 psi or 775 mm of Hg.



15. HUMIDITY CHAMBER

Humidity chamber is a vital testing instrument for analysing the prolong effect of humidity on components to fix its quality parameters. This instrument is not subjected to only one industry applications. It is used in pharmaceuticals, plastic and rubber industries for quality assurance testing.



16. MILLI Q WATER SYSTEM

Purification Unit which produces high-quality Type 1 ultrapure water (TDS 0) for trace elemental analysis.



17. -82°C FREEZERS

These ultra low temperature freezers typically have a temperature range of -45°C to -82°C. Minus 80 freezers are used in research, in medical and clinical applications, and in industrial settings for the storage of samples that require ultra low storage temperatures.



18. VISCOMETER

Viscometer is instrument that measures the fluid flow and viscosity of liquids. Spindle (62, 63, 64)

SPECIFICATIONS:

- Speed: 0.1-200 RPM
- Temp : -100C° to 300C°
- Viscosity Accuracy: 1.0% of full scale range
- Operating environment : 0°C – 40C°



19. BSL-2

The class II type B2 biological safety cabinets are ventilated workstations that are enclosed on three sides, have a positive pressure, and are used in microbiology labs, toxicology labs, and research labs to contain pathogens and toxic chemicals inside the work area while at the same time ensuring the samples.



www.aicjtf.org

Email: aishwarya.bagayi@jyothyit.ac.in

nithin.kumar@jyothyit.ac.in

Mobile: 91+9164392199, 9916209506

rama.jyothi@jyothyit.ac.in , 9845747878