

## INFRASTRUCTURE AND FACILITIES

Sr. No.	Name of the instrument	
1	UV software / ELECIO	Steady supply of ultraviolet wavelength of light for sterilization and Physico-chemical treatment
2	SOFC/ Fuel cell/ solar source meter cell	Used as electrochemical energy conversion device capable of generating electricity by oxidizing fuels/electrolytes
3	Charging /Discharging Apparatus	Used for analysis of capacitors
4	Four Probe (Research grade)	Four probe apparatus is used for the measurement of resistivity of semiconductors.
5	Power Supply (1 – 50 volt)	Used for laboratory procedures like electrolysis, electrophoresis etc.
6	Hot Air oven	Used for drying samples, moisture analysis up to 250 <sup>o</sup> C
7	Ph meter	This instrument measures acidity/alkalinity of a solution. used to measure hydrogen ion activity in solutions.
8	Spin-Coater Unit	Used to spread uniform thin films on flat substrates by centrifugal force.
9	Fume hood	The ventilated enclosure used to trap and exhaust vapors, gases, and nanoparticles.
10	Bomb Calorimeter	Used to measure the calorific value of the solid and liquid samples. It measures the amount of a sample's combustion heat or heat power when excess oxygen combustion occurs.
11	Incubator	Used for providing steady temperature for chemical reactions
12	Shaker	Used for preparing chemical solutions, buffers, nanoparticle solutions etc.
13	Muffle Furnace (2)	Temperature range up to 1200 <sup>o</sup> C Used for high temperature testing applications such as loss on ignition or Ashing
14	UV old	Used to measure how much a chemical substance absorbs light.
15	UV New (Lab India)	Used for the quantitative determination of analytes, such as transition metal ions, highly conjugated organic compounds etc, used to measure how much a chemical substance absorbs light.
16	Cyclic Voltammetry	Cyclic voltammetry (CV) is the electrochemical technique commonly employed to investigate the reduction and oxidation processes of molecular species. CV is also invaluable to study electron transfer-initiated chemical reactions, which includes catalysis.
17	Flame Photometer	The principle of flame photometer is based on the measurement of the emitted light intensity when a metal is introduced into the flame. Used for

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		determining of sodium, potassium, lithium and calcium ions
18	TGA	Thermogravimetric analysis (TGA) is an analytical technique used to determine a material's thermal stability and its fraction of volatile components by monitoring the weight change that occurs as a sample is heated at a constant rate.
19	DTA	Refers to differential thermal analysis. The DTA technique measures the difference between the sample temperature ( $T_s$ ) and the temperature of a reference ( $T_r$ ).
20	Sonicator bath	Used to fulfil all sonication needs of labs. The use of sonicators for degassing as well as Ultrasonic baths also offer gentle yet effective cleaning action ensuring that no contaminants are left on glasswares from the previous process.
21	Ball milling	A ball mill is a type of grinder used to grind and blend bulk material into QDs/nanosize using different sized balls.
22	Digital colorimeter	A colorimeter can measure the absorbency of light waves. During colour measurement the change in the intensity of electromagnetic radiation in the visible wavelength region of the spectrum after transmitting or reflecting by an object or solution is measured.
23	Distillation Apparatus	The distillation apparatus consists of a vessel for plant material and water, a condenser to cool and condense the vapour produced and a method of collection.

List of instruments available in Cell, Micro and Molecular Biology

<b>Sr. No.</b>	<b>Name of the instrument</b>	<b>Experimental Usage/Application</b>
1	PCR	Used for Amplification of fragments of DNA during cloning, detection of variants and gene expression in cells
2	Magnetic stirrer	Used for preparing electrolytes, chemical solutions, buffers nutrient media for growing cells
3	Laminar Air Flow	Used as sterile, microbe-free workspace for handling plant, animal, and microbial cells of research interest
4	Refrigerator	Temporary cold Storage for nano-solutions, chemicals, electrolytes, buffers, microbial and cell cultures
5	Cooling Centrifuge-	Used for sedimentation of cells in suspension, density-based phase separation of chemical solutions while maintaining low temperatures
6	Weighing Balance	Used for weighing of chemicals required in synthesis of nutrient media, buffers, polymers, nanoparticle synthesis and other laboratory solutions
7	Stabilizer	Stable voltage supply for electrophoresis, electrolysis, and other such experimental procedures
8	Nitrogen Cylinder	Used for steady supply for nitrogen and hydrogen gases at controllable pressures
9	Vortex mixer	Used for nano-solution preparation, generating cell and microbial suspension cultures
10	Autoclave	Used for Microbial and cell culture media synthesis, sterilization and discarding of lab-waste. Also used for sterilization of lab equipment, lab coats and consumables such as microtips etc.
11	Plate Reader	Used in analysis of Cell and microbial cultures, cell, and microbial counting
12	Centrifuge	Used for sedimentation of cells in suspension, density-based phase separation of chemical solutions
13	CO <sub>2</sub> Incubator	Used for maintaining an optimal environment during cell growth
14	Biosafety cabinet	Used as per prescribed protocols and guidelines of usage of sensitive cell lines
15	Microscope	Used for Cell and microbial visualization, imaging
16	Inverted Microscope	Observing and imaging of living cells and microbes
17	-20° C refrigerator	Long-term cold Storage for nano-solutions, chemicals, electrolytes, buffers, microbial and cell cultures