Department of Chemical Engineering
Details of Research Equipment

Department Name	CHEMICAL ENGINEERING
Equipment Name	Atomic Absorption Spectrometer (Make: Thermo)
Specifications	1. Spectrometer should have High resolution Echelle double Monochromator with Integrated prism and Echelle grating Resolution or a high resolution holographic grating with min 1000 groves/mm. 2. Spectral resolution : < 2pm at 200nm. 3. Spectrometer should cover the entire wavelength range from185-900nm.
Functions	To analyze elements in solution
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	Chemical vapor deposition
Specifications	Furnace Geometry: Tubular Maximum temperature: 1100 ◦C Power requirement :2000 Watt Tube specification Material: Quartz Diameter ID: 45 mm, OD: 48 mm
	Functions: Chemical vapor deposition (CVD) is a vacuum deposition method used to produce high quality, and high-performance, solid materials.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	Auto Clave High Pressure Reactor
Specifications	SS 316 High Pressure reactor, autoclave for design for 200bar, G pressure and 350 ^{0}C, 0.5 HP motor, infinitely variable speed, digital RPM indication
Functions	An autoclave high pressure reactor is used in the research and development of various chemicals, in study of chemical reactions and their improvement, production of new catalysts, corrosion studies, separation or mixing of compounds at high-temperature, high-pressure reactions, to synthesis adsorbents for textile wastewater treatment.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	High Pressure Homogenizer
Specifications	VS 500 Lts, Manual, capacity: 500 LPH, Design pressure 200kg/cm^2, MOC of plunger: AISI 316 with harden materials. Speed: 235 stroke/second
Functions	High-pressure homogenizers are most commonly used for creating emulsions and for cell lysis when relatively large volumes are being processed.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	Ultrasonic sensor probe
Specifications	Power Rating : 750 Watts. Frequency. : 20 ± 2 KHz. Programmability : 10 memories. Programmable Timer. : 99 hours. Sequencing : Optional. Adjustable Pulse On/Off. : 1 second to 10 seconds. Dimensions : @ 15'W × 12'L × 6.5'H. Voltage. : 230V, 50 Hz.
Functions	Sonication is the act of applying sound energy to agitate particles in a sample, for various purposes like Nanofluids preparation, nanoparticles preparation and chemical reactions. Ultrasonic frequencies (>20 kHz) are usually used, leading to the process known as Ultra sonication.
	 **Ultrasonic Sensor Probe**

Department Name	CHEMICAL ENGINEERING
Equipment Name	UV-Spectrometer
Specifications	Light Source: Halogen lamp, Deuterium lamp Wavelength range: 190 to 1600 nm Wavelength accuracy: +/-0.3 nm (at 656.1 nm) +/-1.0 nm (at 1312.2 nm) Wavelength repeatability: +/-0.05 nm (UV-Vis), +/-0.1 nm (NIR)
Functions	A UV-Vis spectrophotometer measures the intensity of light transmitted through a sample compared to a reference measurement of the incident light source.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	Brookfield viscometer
Specifications	Viscosity: 0.2 - 15,000 Poise. Shear Rate: 10 - 13,000. Temperature: 5-75°C or 50-235°C. Speed of Rotation: 5-1000 rpm.
Functions	They measure viscosity by sensing the torque required to rotate a spindle at constant speed while immersed in the sample fluid. The torque is proportional to the viscous drag on the immersed spindle, and thus to the viscosity of the fluid.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	COD digester with analyzer (Make: Lovibond (RD 125)
Specifications	Hole Size: 17 mm (Diameter) x 40 mm (Depth) Glass Tube: 16 mm (Outer Diameter) x 75 mm (Length) Temperature: 150 ^{0}C
Functions	A COD Digester is also provided with the COD analyzer for digestion of the water sample mixed with reagents. It is a robust instrument capable of accommodating 25 vials at a time. A PID controller in the digester ensures that all the samples are heated precisely to 150 ^{0}C.
Photograph	

Department Name	CHEMICAL ENGINEERING
Equipment Name	Electronic Moisture Analyzer Balance (Make: SHIMADZU)
Specifications	Model: MOC63U, Capacity: 50 / 150 / 210g. Readability: 1/0.1mg. Moisture content Readability: 0.01/0.001% Temp range: 160/250 degree C.
Functions	A moisture balance, also called a moisture analyzer, measures the amount of moisture in a substance. This is particularly helpful in food processing labs as the amount of moisture can be an indicator of freshness and quality for some foods.
Photograph