

List of major equipment available to carryout Research Activities



राष्ट्रीय प्रौद्योगिकी संस्थान आंध्र प्रदेश

NATIONAL INSTITUTE OF TECHNOLOGY ANDHRA PRADESH

(An autonomous Institute under the aegis of Ministry of Education, Govt. of India)

Near Kondruprolu, Tadepalligudem, W.G. Dist. – 534101

Department of Biotechnology

List of Major Equipment

S.NO	NAME OF THE INSTRUMENT	MAKE & MODEL	TECHNICAL SPECIFICATIONS	FACULTY INCHARGE
1	Refrigerator Quantity:1	Samsung, RR19K173ZR Z/HL	Type: Single Door Defrosting Type: Direct Cool Compressor Type: Digital Inverter Compressor Capacity:192 L Storage volume: 182L Number of Doors:1 Built-in Stabilizer: yes Shelf Material: Toughened Glass Shelves Door Lock: Yes Gasket Type: Anti-Fungal Door Removable Gasket: Yes Power Features Stabilizer Required: No Number of Refrigerator Shelves:2 Number of Refrigerator Drawers:1 User Manual and Warranty Card	Dr. T Jagan Mohan Rao
2	Magnetic Stirrer Hot Plate Quantity:2	Cole-Parmer WW – 15956-32	OP Plate Material Ceramic-coated Aluminum Min Temperature(°C):20 Max Temperature(°C):370 No. Of Stirring Positions:1 Description: Digital Round Top Ceramic-Coated Stirring Hot Plate with Counter Reaction Stirring speed: 0-1500 RPM	Dr. T Jagan Mohan Rao
3	Refrigerated Circulating Water Bath Quantity:1	Scientifique IC201-020	Bath Volume: 20L Temperature Range: -10°C To 100°C Inner Chamber: SS 304 Exterior: Powder Coated GI Sheet Lid: SS Lid with Handle Temperature Controller: Digital PID Controller with SV & PV Temperature Sensor:PT100 Refrigeration System: CRF Free Heating System: ISI Mark Immersion Heaters Circulation Pump:10 - 15 Liters Per Minute Safety Feature: Over Temperature Cut-Off	Dr. T Jagan Mohan Rao

			Power Supply:220 Volts 50 Hz	
4	PH Meter Quantity:2	Oakton 35413-00	pH Range 0.00 to 14.00 pH Accuracy \pm 0.01 pH Temperature Accuracy: \pm 0.5°C Temperature Range:0.0/100.0°C Width :6-7/8” Height :2-3/4” Length :6-1/8” Operating Frequency :60 hertz Specification Met: Certified Frustration-free	Dr. T Jagan Mohan Rao
5	Electrophoresis Unit Quantity:1	Hi Eco Mini Horizontal Electrophoresis Himedia LA 851	Robust acrylic frame mounted on non-slip rubber feet. A safety lid fits in one way only preventing access to live components and avoid evaporation. Gel tray gasket provide sealing for leak-proof gel casting parameter. Long life pure Platinum electrodes. Convenient carrying handles enable easy buffer disposal. Operating Temperature range 4-65°C. Output Range: 50 V / 100 VDC Max. Buffer Volume(ml): 150 Gel Casting Tray: 1 No. Hi Eco Mini Horizontal Electrophoresis with maximum samples 14 Tank dimensions(L*W*H): 16.2*9.9*2.9cm	Dr. T Jagan Mohan Rao
6	UV Transilluminator Quantity:1	Major science, MUV21-312	Dimensions: 21 \times 21 cm Single wavelength 254, 312, or 365 nm. High intensity/low intensity switch for single wavelength models Fast, no blink startup Long lasting filter UV protection cover WITH W*D 330*250 mm Rated voltage :110 V ~/ 220 V~ Light source: 8 W *6 Tubes	Dr. T Jagan Mohan Rao
7	UV-VIS Spectrophotometer Quantity:1	Shimadzu UV-1800 Double beam	Stray Light <0.02%T at 340 nm, 400 nm; <1.0%T at 198 nm Source Lamp Deuterium: Tungsten-Halogen Source Lamp Life :2000 hours Beam Type: Double Bandwidth: 1.0 nm	Dr. T Jagan Mohan Rao

			<p>Min Wavelength (nm)190 Max Wavelength (nm)1100 Wavelength Accuracy\pm0.1 nm Wavelength Reproducibility\pm0.1 nm Min Photometric - Transmittance (%T)0 Max Photometric - Transmittance (%T)400 Min Photometric - Absorbance (A)-4 Max Photometric - Absorbance (A)4 Photometric Drift<0.0003 A/hr Detector Silicon photodiode Display Type: LCD (4.75" x 3.5") Power: (Hz)60 UV/Visible Scanning Spectrophotometer; 115 VA</p>	
8	Vortex Mixer Quantity:2	Thermo Scientific 88880018- LP	<p>Speed: 0 to 3,000rpm Voltage :100 to 240V Hertz:50/60Hz Plug Type: Cord set w/various plugs Type: Mixers Dimensions (L x W x H) Exterior: 8.3 in. x 6.1 in. x 3.3 in., 210 mm x 154 mm x 83 mm Load Bearing Capacity:0.5kg (1.1 lb.) Platform Material: Rubber Operating Modes: Continuous / Touch Electrical Requirements:100 to 240V 50/60Hz</p>	Dr. T Jagan Mohan Rao
9	Orbital Shaker & Incubator Quantity:1	Scigenics Biotech, Orbitek LE	<p>Cabinet Material: Coated Steel (exterior) and Stainless Steel (interior) Current:16 Amp Dimensions External:650 x 750 x 800 mm Dimensions Internal:500 x 500 x 400 mm Phase: Single Phase Platform Size:420 x 420 mm Speed Accuracy: +/- 2% of set value Speed Drive: Brushless AC Temperature Control Accuracy: +/- 0.1 deg C</p>	Dr. A. Seenivasan

			<p>Temperature Uniformity: +/- 0.3 deg C nominal uniformity @ 37.0 deg C in flasks Speed Range:30-400 rpm Frequency:50 Hz Display Type: Digital LED Orbital Diameter:25 mm Temperature Range:5 deg C to 80 deg C Voltage:230 Volt Power:900 W</p>	
10	Autoclave Quantity:1	Equitron, Pad series (# 7421 PAD)	<p>Working Chamber Size: 300 * 500 Mm (12x20'') / 35 L Heater: 1.80 Kw Gross Dimensions: 820 X 620 X 1170 Mm Automatic Purging for Efficient Sterilization. Preset (At 121°C) Digital Temperature Indicator Cum Controller Linked to A Preset (20 Min) Timer. Low Water Level Cut Off. Fitted With a Safely Valve / Fusible Safety Plug for Added Safety. End Of Cycle Buzzer. Supplied With Traceable Certificate for Pressure Gauge and Temperature Indicator.</p>	Dr. T Jagan Mohan Rao
11	Deep freezer Quantity:1	Blue star 25 Cup right medical freezer (DW – 25 BDL 280)	<p>Capacity(L) :280 Temperature Range (°c) -10 To -25 Cooling Performance(c): -25 Refrigerant R600a Cooling Method Direct Cooling Display Digital Display Temperature Data Volt/Freq/Power (V/Hz/W) 220-240 /50/135 External Material: Pcm Rated Frequency :50 Hz Rated Current :1.8 A Anti- Shock Safety Classification :1 Power Consumption: 1.3 Kw / 24 Hr Inner Material Aluminum Plate with Spraying</p>	Dr. T Jagan Mohan Rao
12	Laminar air flow chamber Quantity:1	Classic air systems, CASS 900 H	<p>Cleanliness: Class 100 Particle retention: 0.3 micron Velocity: 90FPM + 20% Illumination: 750 - 800 lumen Noise level: 60-65 decibels</p>	Dr. T Jagan Mohan Rao

			Standard: FED 209E Power supply: 220V single phase	
13	Refrigerated centrifuge Quantity:1	Remi, Neya 16 R (500 - 16000 RPM)	Maximum speed:16000 rpm (fixed angle) Setting RPM: Yes Maximum RCF:21000g Display RCF: Yes Timer: 00:30 to 99:50(mm:ss) and continuous mode Date and Time: Yes Acceleration levels:0-9 (0 = min – 9 = max) Deceleration levels:0-9 (0 = min – 9 = max) Temperature range: -: -10°C to +40°C Precool function: -: Yes Display temperature: -: Yes (°C and °F) Spin function: Yes Programs:10 programs with protection function Indication of rotor: Yes Noise:55 dB:55 dB power supply:220/240 volts, ±10/1Ø,50 HZ AC,15 Amp Rotor1: A 24-2 (max 15000 rpm) Rotor2: A 6-50 (max 9500 rpm) Rotor3: A 6-100 (max 5000 rpm)	Dr. T Jagan Mohan Rao
14	Microscopes (labomed- LX300) Quantity:1	Labomed, LX 300 TRINO LED	Light Source: Halogen or Led Stage Size: 135*125mm, with coaxial drive Illumination: Halogen 6V-20W illumination for LED up to 50000 hours of LED life Voltage: For HL input 220v-240v AC and For LED input 180v-250v with removable imported cord Is It Portable: Yes Halogen Lamp:6V-20W Battery Backup: up to 50000 Hours Viewing Bodies: Binocular or Trinocular tube 45 Degree inclined, 360 Degree rotatable Eyepieces: Focusable eyepiece with graduated scale WF10x/18mm F.O.V. with foldable eye guard, lockable Nosepiece: Quadruple nosepiece (Ball bearing type) with rubber grip.	Dr.A.Seenivasan

			<p>Par-centered and Parfocal on CNC Machines</p> <p>Objectives: LP series DIN Plan Achromatic objectives 4x, 10x, 40x (spring loaded), 100x Oil (spring loaded)</p> <p>Mechanical Stage: Mechanical stage 135x125mm with co-axial drive, highly smooth on ball slides</p> <p>Input Voltage:220-240 V AC</p>	
15	<p>SDS-PAGE</p> <p>Quantity:1</p>	Bio – Rad	<p>Casting Stand: Polycarbonate Pin</p> <p>Retaining ring and spring: Stainless steel</p> <p>Casting Frames: Polysulfone</p> <p>Gray gaskets: Thermoplastic rubber (gray)</p> <p>Electrode Assembly: Glass-filled polybutylene terephthalate</p> <p>Electrodes: Platinum wire, 0.010 inches diameter</p> <p>Gasket electrode: inner core Silicone rubber (green)</p> <p>Mini Tank and Lid: Polycarbonate</p> <p>Sample Loading Guides: Delrin</p> <p>Combs: Polycarbonate (10 well) 1 mm</p> <p>Overall Size :(W x L x H, cm) 12 x 16 x 18</p> <p>Precast Gel Compatibility: Ready Gel and Mini-PROTEAN precast gels</p> <p>Voltage Limit 600 V DC and 500 W</p> <p>short plates</p> <p>glass plates with 1.0 mm spacers.</p> <p>power supply:100-120/220-240 volts ,50/60 hz</p>	Dr. T Jagan Mohan Rao
16	<p>Weighing balance (Macro)</p> <p>Quantity:1</p>	Ohaus, Scout SPX 421	<p>Min Capacity :2g</p> <p>Max capacity: 420g</p> <p>Readability :0.1g</p> <p>Repeatability :0.1g</p> <p>Linearity :0.1g</p> <p>Calibration Type: External</p> <p>Output Optional RS232, USB, Ethernet, Bluetooth</p> <p>Stabilization Time :(Sec)1</p> <p>Power: (VAC)115 / 230</p> <p>Depth: (in)8 51/64</p> <p>Platform Width (in)4 45/64</p> <p>Display Column Height (in)25/32</p>	Dr. T Jagan Mohan Rao

			Description Scout Portable Balance 420G x 0.1g	
17	Weighing balance (Micro) Quantity:1	Afcoset ER120A	Min Capacity: 100 mg Max Capacity: 220gm Power supply: 220/240 v AC (50 HZ) Pan diameter :85mm/3.3” Stabilization time: approx. 5 sec	
18	Weighing balance (sunrise) Quantity:1	Sunrise Technology, FB224	Type of Weighing Scale: Digital Capacity:220GM X 0.1MG Scale Calibration: Internal Accuracy :0.1 mg Min :0.1 mg Max Capacity: 220gm	Dr. T Jagan Mohan Rao
19	Ice Flaking Machine Quantity:1	BR BIOCHEM Life sciences pvt ltd, BRIF- 50	Ice making capacity :50 kg/24 hr Ice storage :15 kg Voltage:220v/50 Hz Power supply :380 W Cooling type: Air cooling Refrigerant: R134a Water supply: tap water Dimension(mm):400*543*720 W*D*H (INCH):18.4*24.2*30.7	Dr. T Jagan Mohan Rao
20	Water Bath (Mini) Quantity:1	Grant JBN5	Bath volume:5L Temp range: Ambient +5 to 95°C Stability (DIN 12876) @70°C: 0.5°C Temperature setting: Digital Supply voltage: 120 or 230V	Dr. T Jagan Mohan Rao
21	Autoclave (Mini) Quantity:1	Gera Ventures NIS-115A	Capacity: 30L Supply voltage: 120 or 230V Operating system: manual Supplied With Pressure Gauge and Temperature Indicator	Dr. T Jagan Mohan Rao
22	Magnetic Heater Stirrer Quantity:2	Lab Man Scientific Instruments, mLabs-5 LC	Stirring speed: 100-1600RPM Temp range: ambient-100°C Size: Dimension LxWxH (mm) 300 x 190 x 126 Display: Digital LCD display with back light Big Size Ceramic hot plate with flame protection and durability Heating and stirring can proceed simultaneously Temperature & Stirring speed is stepless adjusted. Real temperature & speed display on the screen simultaneously Two sensors, outside PT 100 sensor controls the liquid temperature,	Dr. T Jagan Mohan Rao

			<p>inside K type sensor control the hot plate temperature (selectable) Over temperature alarm Standard accessories: Stir Bar, Temperature Probe, Stand, Instruction Manual.</p>	
23	<p>Leica Dark Field Microscope Quantity: 1</p>	<p>Leica Microsystems DM 500</p>	<p>Head: 45° binocular tube Eyepiece 10X/20 eyepiece w/eye guard Objective: maximum of 10x (0.25 NA), 20x (0.4 NA), 40x (0.65 NA), & 100x/Oil (NA 1.25) Objective lens: Abbe Condenser NA at Dry 0.9 and for oil 1.25 Phase Slider: 4 positions Bright field: 10X/20X/40X/100x Features: Should have Co-axial focusing, Micrometer arrangement: Fine and coarse adjustment Camera: Minimum 5-megapixel cameras that can live-stream HD images to students' smartphones or tablets via Wi-Fi. Software is free to download and work with android and windows-based system The camera can also be accessed with any Wi-Fi enabled Windows PC or MAC For standalone HD screens or larger screen projections you can use the HDMI connection Lamp: LED with minimum 6000 K temp, 25,000 h life at full intensity Warranty: 5 Year Mechanical and 1 year electrical Accessories: Immersion oil, Dust cover, power cord, Manual, phase contrast slider & camera module Binocular bright, dark fields & phase contrast</p>	<p>Dr.A.Seenivasan</p>
24	<p>LG Microwave Oven Quantity: 1</p>	<p>LG, MC3286BLT</p>	<p>Capacity: 32L Convection: can be used for baking along with grilling, reheating, defrosting and cooking Input power: 230V~50H Frequency: 2450MHz Includes: shelf, glass tray and tawa and rotating ring</p>	<p>Dr. T Jagan Mohan Rao</p>

25	Hot Air Oven Quantity: 1	Equitron, Oven-Stream Series (#7051- 250L)	Capacity: 250L Temp range: +50°C to 200°C. Control accuracy: ±0.5°C. Uniformity: ±2.0 at 100°C Inner dimensions(W*D*H): 600*600*700mm Outer dimensions(W*D*H): 790*930*1050mm Construction: external structure of steel, duly epoxy coated, rest SS304 Shelves: 3 stainless steel wire mesh shelves. Shelf height adjustable in 25mm steps. Glass window in-built into the door. Automatic cut off of heater & blower when door opened. Digital PID temperature controller with timer, alarms and auto tuning. Non-contact type door switch. Aero dynamic internal design for achieving horizontal air circulation. Electric supply: 230V AC, 50Hz, Single phase. Gross weight: 145kg. CE certified.	Dr. T Jagan Mohan Rao
26	Double Distillation Unit Quantity: 1	Borosil, 3365041	Material: All quartz Distillate temp: 65-75°C Dist. Water output capacity(approx.): 1.5l/hr Electrical requirements: 230-250V single phase 3kw Minimum cooling water requirement: 1l/hr Biological activity: pyrogen free Conductivity s/cm: <1x10 ⁻⁶ Total organic carbon (TOC) µg/l :<500 Organic matter mg/l: nil Total solids mg/l: <0.1 Total plate count: 0 Standard plate count: 0 Yeast and mold: 0 KmnO ₄ color retention: 1hr UV absorbance at 254nm: 0.007	Dr.A.Seenivasan
27	Whirlpool Refrigerator Quantity: 1	Whirlpool, IF515D 500Ltrs	Energy Efficiency: 3 Star Rating Capacity: 500 liters Annual Energy Consumption: 248 Kilowatt Hours	Dr. T Jagan Mohan Rao

			<p>Refrigerator Fresh Food Capacity:382 liters Freezer Capacity:113 Liters Form Factor: Standard double door Special Features: Inverter, Convertible, Toughened Glass, Stabilizer Free Operation, Door Lock Cooler: Black Voltage:230 Volts Number of Drawers:2 Defrost System: Frost Free Door Orientation: Right Shelf Type: Glass Number of Shelves:3 Certification: Energy Star Material: Steel Included Components: Refrigerator, User manual, Warranty card</p>	
28	Fermenter Quantity:1	Eppendorf, BIO FLO 120	<p>Fermenter: working volume of 1 to 2 L (Total capacity of vessel - 3 L) Controllers capable of handling two different platforms i.e., glass and single use vessels with volumes ranging from 250 mL to 40 L on interchangeable basis. Suitable both microbial fermentation as well as Mammalian cell culture Fermenter is Autoclavable Temperature control: 20°C to maximum 60°C Stirrer motor for microbial fermentation operational from a minimum of 100 rpm to 1200 rpm. Chiller: Recirculating Chiller suitable for the operation of 3 L fermenter. Capacity: 7 liters or above Temperature range: -10 to 100 °C Digital temperature controller available</p>	Dr.A.Seenivasan

			<p>The material of construction is resistant to corrosion It provides provision for drain Auto restart and auto cut off option available.</p> <p>Air compressor Air Compressor compatible with 3 L fermenter Compressor is light weight, compact, oil free and rocking piston type. Air vents available Motor H.P: 0.75 – 1, Noise level (dB): 60 or less, Max. Pressure bar: 7</p> <p>Autoclave Autoclave suitable for sterilization of a 3 L fermenter. Autoclave have internal basket which can hold fermenter with all components for sterilization purpose. Material of construction: double walled stainless steel Autoclave dimensions – internal: min. diameter - 450 mm and min. height - 700 mm. Nitrogen cylinder included.</p>	
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DEPARTMENT OF CIVIL ENGINEERING

List of Major equipment

Concrete Technology Lab	
S.NO	Name of the equipment /Item
1	Vibrating table IS:2514-1963
2	Hot air oven
3	Needle vibrator
4	4 Piller Compression Testing Machine
5	Vee Bee Consistometer as per IS: 10510-1983
6	Vibrating Machine as per IS :10080-1982
7	Rebound Hammer test instrument with all accessories
8	Concrete drum mixer
9	Electronic weighing balance 100KG readability 10gm
10	Electromagnetic sieve shaker
11	Flow table(electrically operated)
12	Concrete Permeabilty Apparatus 3 cell model for 100 mm cube
13	Concrete Permeabilty Apparatus 3 cell model for 150 mm cube
14	Accelerated Curing Tank
15	Bouyance Balance Apparatus
Geotechnical Engineering Lab	
S.NO	Name of the equipment /Item
1	HS31.515 Automatic Sieve Shaker
2	HOS Thermostatically Controlled Hot Air Oven
3	HS 12.10 Permeability Apparatus (For determenation of coffcient of permeability by constant head parameter & variable head parameter
4	HS 22.15 Unconfined Compression Apparatus
5	HS 24.15 Direct shear apparatus, load frame 2 KN Capacity with proving ring and dail gauges
6	HS 24.617: Electronic Direct Shear Apparatus; 12 speed Motorised with Microprocessor based touch panal electronic unit
7	HS 18.35 : Three Gang Bench Type Consolidation Apparatus
8	Hydrometer analysis Set up (Soil hydrometer, motor operated stirrer, digital thermometer , sodium hexametaphosphate)
9	HS 16.07: Soil sample extruder with hydraulic jack system
10	Motor Driven Automatic Soil Compactor
11	Triaxial shear test and unconfined compressive strenght test apparatus : Eletrically operated
Surveying Lab	
S.NO	Name of the equipment /Item
1	Hand Held GPS
2	California Bearing Ratio test Apparatus
3	Electronic Digital Theodolite 1/2 accaracy
4	Electronic Total Station (Refractor less)

Environmental Engineering Lab	
S.NO	Name of the equipment /Item
1	PH Meter
2	Handheld Conductivity Meter
3	Benchtop Dissolved Oxygen Meter
4	Handy Dissolved Oxygen Meter
5	Turbidity Meter
6	Micro Centrifuge
7	Oven
8	Vacuum Pump
9	High Temperature Horizontal Muffle Furnace
10	Weighing Balance
11	BOD Incubator
12	Refrigerator
13	COD Digester
14	Jar Test Apparatus
15	Research Centrifuge
16	Orbital Shaking Incubator
17	Mini Rotary Shaker
18	UV-Visible Spectrometer
19	Ultrapure RO+MilliQ
20	Autoclave
21	Laminar Hood
22	Ion Selective Electrode (ion meter, fluoride, bromide & iodide)
FM & HM LAB	
1	Reynold's Apparatus
2	Pitot Static Tube Apparatus
3	Pipe Friction Apparatus
4	Open Circuit SubSonic Tunnel
5	Metacentric Height Apparatus
6	Bernoullis Theorem Apparatus
7	Tilting Fume
8	Centrifugal Pump Test Rig
9	Francis Turbine
10	Kaplan Turbine
11	Pelton Wheel Turbine
Engineering Geology Lab	
S.NO	Name of the equipment /Item
1	Spectrometer
2	Laboratory Polarising Microscope "Radical" Make

Department of Chemical Engineering

List of Major equipment

S. No.	Name of the Equipment	Model Number	Technical Specification	Faculty-in-charge
1	Iso Thermal Batch Reactor	CLCRE 07	Temp. Sensor : RTD PT-100 type Control panel comprises of : Digital Temp.PID Controller : 0-199.9°C, (For Water Bath)	Dr. Vinoth Kumar Raja
2	Plug Flow Tubular Reactor(Coiled tube type & Compressed air feed system)	CLCRE 05	Reactor : Material Stainless Steel, Volume (0.6-0.7) Ltrs (approx.). Feed Tank (2Nos.) : Material Stainless Steel, Capacity - 20 Ltrs. Pressure Regulator : 0-2 Kg/cm ² . Pressure Gauge : Bourdon type 0-2 Kg/cm ² .	
3	Continuous Stirred Tank Reactor(CSTR)	CLCRE01	Pressure Regulator : 0-2 Kg/cm ² Pressure Gauge : Bourdon type 0-2 Kg/cm ² (ISI Make)	
4	Combined Flow Reactor(Compressed air feed system)	CLCRE 11	Pressure Regulator : 0-2 Kg/cm ² Pressure Gauge : Bourdon type 0-2 Kg/cm ²	
5	Cascade Continuously Stirred Tank Reactor(Compressed air feed system)	CLCRE 03	Pressure Regulator : 0-2 Kg/cm ² Pressure Gauge : Bourdon type 0-2 Kg/cm ² (ISI Make)	
6	Packed Bed Reactor(Compressed air feed system)	CLCRE 10	Reactor Column : Material Borosilicate Glass, Volume 1.2 Ltrs. (approx). Packing : Rasching Rings, Material Borosilicate Glass. Size 6-8 mm (approx.). Feed Tank (2Nos.) : Material Stainless Steel, Capacity 20 Ltrs. Feed Circulation : By Peristaltic Pump (2Nos.). Computer controlled for different RPM. Piping : Stainless Steel and Silicon pipe. Product Analysis : By Electronic Sensor, Output 4-20 mA.	

7	Condensation Polymerization Set-Up	CLCRE 19	Condensate collecting tank : Material Stainless Steel, Capacity 5 Ltrs. Temperature sensors : RTD PT-100 type Control panel comprising of : Digital Temperature Controller : 0-199.9°C RTD PT-100 type (For Reactor). RPM Indicator : Digital, Non-contact type.
8	Fixed Bed Catalytic Reactor	CLCRE 26	The feed flow rate variable between 0 and 20ml/min. The FIA pump able to give flow rates up to 2.5ml/min.
9	RTD Studies in CSTR	CLCRE 14	Pressure Regulator : 0-2 Kg/cm ² Pressure Gauge : Bourdon type 0-2 Kg/cm ²
10	RTD Studies in PFR	CLCRE 15	Pressure Regulator : 0-2 Kg/cm ² . Pressure Gauge : Bourdon type 0-2 Kg/cm ² .
11	Chemical Reactor Trainer	CLCRE 16	Measurement of conductivity = 0-200 mS Temperature = 0-1000C Tubular reactor: A 20-30 meter

MASS TRANSFER LABORATORY

S. No.	Name of the Equipment	Model Number	Technical Specification	Faculty-in-charge
1	Liquid-Liquid Extraction in Packed Bed	KCMT 101	Diameter of column:0.048m, column height:0.75m	Dr. Vinoth Kumar Raja
3	Sieve Plate Distillation Column	KCMT 112	No. of plates:07	
4	Packed Bed Distillation Column	KCMT 113	Packed height:0.90m	
6	Absorption in Packed Bed	KCMT 122	Diameter of the column:0.048m,column height:0.750m	
8	Solid In Air Diffusion Apparatus	KCMT 132	Diameter of column:0.050m	
9	Forced Draft Tray Dryer	KCMT 142	Diameter of orifice:0.026m, diameter of pipe:0.052m	
10	Mass Transfer with/without Chemical Reaction(Solid-Liquid System)	KCMT 144	Rod diameter:0.007m	
11	Adsorption Studies	KCMT 165	Length of column:0.5mtrs, diameter of column:70mm	
12	Liquid Liquid Extraction	KCMT 102A	Diameter of column:0.048m, column height:1m	

PROCESS CONTROL AND INSTRUMENTATION LABORATORY

S. No.	Name of the Equipment	Model Number	Technical Specification	Faculty-in-charge
1	Flapper Nozzle System	BSP20	Flapper Nozzle System : Combined With Flapper & Nozzle assembly. Micrometer : For Linear displacement measurement. Pressure Regulator : Compatible range. Pressure Gauge : Compatible range. Piping : Size ¼”.	Dr. P. Dinesh Sankar Reddy
3	Control Valve Characteristics	BSP08	Control Valve : 2Nos. Characteristics : Linear & Equal % . Type : Pneumatic, Size : ½” . Actuator : 15 Sq. Inch. Stroke : 14 mm. Input : 3-15 PSIG. Water Tank : Material Stainless Steel, Capacity 25 litres. Water Circulation : FHP Pump Champion/Standard make. Overhead Tank : Material Stainless Steel, Capacity 10 Ltrs. Flow Measurement : By Rotameter. Pressure Head measurement : By Single column manometer. Pressure Regulator : 0-2 kg/cm ² . Pressure Gauge : Bourdon type, 0-2 kg/cm ² . Piping : Size ½”	
4	Characteristics of PID Controller	BSP01Y	Temperature:40-640 °C	
5	Temperature Control Trainer	BSP17Y	Temperature Transmitter : Input RTD PT-100 (Range 0-100°C), Output 4-20 mA. Process tank : Material Stainless Steel, Capacity 0.5 lit (approx.). Heater : Nichrome Wire Heater, Capacity 1 kW Thyristor Controller : Input 4-20mA for heater. Flow Measurement : By Rotameter. Piping : Size 1/4” . Interfacing unit : For input-output communication with auto/manual facility. Micro-processor Controller : PID Setting, auto tuning, fully programmable with serial. communication Software : For experimentation, PID control,	

			Data logging, trend plot, offline analysis and printing.
6	Flow Control Trainer	BSP05-D	Rotameter range:245-2450 LPH, head type flow transmitter output: 4-20mADC, HART
7	Level Control Trainer	BSP06-D	<p>Level Transmitter : Range 0-300 mm, Capacitance Type, Output 4-20 mA. Process tank : Material SS with Scale. Capacity 2 Ltrs approx. Water Tank : Material Stainless Steel, Capacity 10 Ltrs. Water Circulation : FHP Pump. Champion/Standard make. Flow Measurement : By Rotameter. Control valve : Compatible capacity with pneumatic actuator. I/P converter : Input 4-20mA, Output 3-15 PSIG.</p> <ul style="list-style-type: none"> • Pressure Regulator : 0-2 kg/cm². • Pressure Gauge : Bourdon type, 0-2 kg/cm² • Piping : Size ¼" • Interfacing unit : For input-output communication with auto/manual facility • Micro-processor Controller : PID Setting, auto tuning, fully programmable with serial Communication • Software : For experimentation, PID control, Data logging, trend plot, offline analysis and printing.
8	Pressure Control Trainer	BSP07-2-D	<p>Pressure Transmitter : Range 0-5 bar, type strain gauge, output 4-20 mA.</p> <ul style="list-style-type: none"> • Process Tank : Material Stainless Steel, Capacity 1.5 Ltrs. • Control Valve : Compatible capacity with Pneumatic

			<p>Actuator.</p> <ul style="list-style-type: none"> • I/P converter : Input 4-20mA, Output 3-15 PSIG. • Pressure Regulator : 0-2 kg/cm². • Pressure Gauge : Bourdon type, 0-2 kg/cm², 0-7 kg/cm² • Piping : P.U. • Interfacing unit : For input-output communication with auto/manual facility • Micro-processor Controller : PID Setting, auto tuning, fully programmable with serial communication • Software : For experimentation, PID control, Data logging, trend plot, offline analysis and printing 	
9	Interacting & Non-Interacting System	BSP06Y	<p>Process Tank : Material Stainless Steel, Circular, with graduated level scale (3 Nos.) Capacity 3.5 litres each (approx.)</p> <ul style="list-style-type: none"> • Supply Tank : Material Stainless steel, Capacity 20 litres. • Overhead tank : Material Stainless steel, Capacity 5 litres. • Water Circulation : FHP Pump, Champion/Standard make. • Piping : SS & PVC, size ¼" • Flow Measurement : By Rotameter. • The whole unit is assembled rigidly on a base plate. • An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus. • The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint. 	
CHEMICAL ENGINEERING RESEARCH LABORATORY				

S. No.	Name of the Equipment	Model Number	Technical Specification	Faculty-in-charge
1	Hydraulic Press	Velan Eng.	1 ton capacity	Dr. P. Dinesh Sankar Reddy & Dr.Vinoth Kumar Raja
2 €	Mechanized Extruder	VBCC	5.5 inner diameter, 11.5 outer diameter	
3	High Temperature Muffle Furnace	BST/MF/1 4508812	Working Temp:1350 ^o C Max. temp:1450 ^o C	
4	Hot Air Oven	BST/HAO-1123	Volume: 45 ltrs	
5	Ultra Sound Sonicator	USB 3.5 H/DTR	Capacity 3.5 ltrs	
6	Laboratory Refrigerator	RLR-300	Temperature:1-10 ^o C	
7	Electronic Weighing Scale	MAB 220	220gm*0.1mg	

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R&D facilities: List of Major equipment

-S. No.	Name of the Equipment	Model Number	Technical Specification	Faculty-in-charge
1.	Cluster of 5 Rack Servers	HPE ProLiant ML350 GEN10	Processor: 2 * Intel Xeon Bronze 3104 1.7GHz/9.6GT/2133MHz/8.25MB/6C/Non-HT/U0/85W Memory: 2 * DDR4 2666 RDIMM 16GB Network: 1 * Dual Port Intel i350-AM2 Gigabit LAN controller + 1*Mgmt LAN Storage Bay: 8 * Hot-Swap 3.5/2.5” HDD Trays Expansion Slots: Full-length/Full-height 8* PCI-E 3.0 * 16(4 at * 16 Link or 8 at x8 Link) Half-Length/Low-Profile Rear: 1*PCI-E 3.0*24(support with riser card) (1*PCI-E*16(*16 Gen3 Link) and 1*PCI-E *8 (*16Gen3 Link)) Front: 1*PCI-E *8(internal HBA/RAID card) Graphics: 2 * Quadro P2000 5GB Storage: 3 * 600 GB SAS HDDs (or) 3.5” SATA3 HDD 2TB 7200RPM Raid: Intel RAID supporting 0/1/5 Front I/O Ports: 2 * USB 3.0 Ports + 2 * USB 2.0 Ports Rear I/O Ports: 2 * USB 3.0 Ports,1*VGA port, 1 * RJ-45 Mgmt LAN port,2 *RJ-45 GbE LAN ports Power Supply: 2 * 1600W Power Supply	Dr. Karthick Seshadri
2.	64-Core Multi-core Machine	Intel Xeon 7210	Processor: Intel Xeon 7210, up to 1.50 GHZ, 64 core, 256 Threads Mother Board: Intel S7200 APR family Memory: 64 GB DDR4 LRDIMM Storage: 500 GB SSD and 1 x 2 TB HDDS Cache: 32 MB on-CPU Cache Chipset: Intel C-612 chipset Expansion: 1 x PCIe 3.0 x 16 or 1 x PCIe Gen3 X 20 (x16 or x4) Ethernet: 2 x ethernet Ports External IO: 2 x USB 3.0	Dr. Karthick Seshadri
3.	Tower Server	Dell Precision 5820	Processor: Intel Xeon W-2265 CPU 3.50GHz, 3504 Mhz, 12 Cores, 24 Logical Processors Mother Board: Intel Xeon Processors P family/Core i7 IOxAPIC Memory: 32 GB DDR4 Storage: 500 GB HDD	Dr. Karthick Seshadri

			Cache: 32 MB on CPU Cache Chipset: Intel 200 Series Chipset Family LPC Controller (C422)-A2D3 Ethernet: 2x ethernet ports External I/O: 8 USB 3.0	
4.	Tower GPU Server	Optiplex 7090	Processor: 10th Generation Intel Core i7-10700 (Octal core, 16 MB Cache, 2.9 GHz to 4.8 GHz, 65 W) Graphics Card: NVidia Quadro T600 8GB GDDR6 Memory: 16 GB, 2 x 8 GB, DDR4 non ECC memory Storage: 1 TB 7200 RPM SATA HDD 1 x Ethernet port.	Dr. Karthick Seshadri
5.	64-Core Multi-core Machine	Intel Xeon 7210	Processor: Intel® Xeon 7210, upto 1.50 GHz, 64 core, 256 Threads L2 Cache: 32MB on-CPU Cache Chipset: Intel® C-612 chipset, Intel Wellsburg Platform Controller Hub (PCH) : 6 x DDR4 DIMMs, 1SPC, 6 x native channels / system Supported speeds: 2133 or 2400MT/s Registered/LRDIMM ECC Memory Populated: 32GB Storage: 256GB Solid State Drive (SSD), 2 TB RAID: Intel RAID supporting 0/1/5 Expansion: 1x PCIe 3.0 x16 or 1x PCIe Gen3 x 20 (x16 or x4) Ethernet: 2x Intel® i210 (Springville 1GbE) Controllers External IO: 2x USB 3.0 Manageability: Pilot 3 BMC	Dr. K. Hima Bindu
6.	Graphics card (quantity:2)	GPU GeForce RTX 2080 Ti	Memory Size: 11GB GDDR6 Memory Bus: 352-bit Output: HDMI/3 X Display Porrt/USB Type-c Supports: Windows 10(April 2018 Update or later)/7 (64 bit) Engine boost clock: 1665 MHz Memory clock: 14.0 Gbps PCI Express 3.0 Software compatibility - Game Ready Drivers, Microsoft DirectX 12 API, Vulkan API , OpenGL 4.5, Microsoft Windows 10/7 x64 Power requirements: 650-watt power supply recommended 295-watt max power consumption	Dr. Nagesh Bhattu S
7.	Cluster of 3 Rack Servers	DELL EMC PowerEdge R440 -	Processor Up to two 2nd Generation Intel® Xeon® Scalable processors, up to 24 cores per processor	Dr. Srilatha Chebrolu

		Quantity 2	<p>Memory 16 DDR4 DIMM slots, Supports RDIMM /LRDIMM, speeds up to 2666MT/s, 1TB max1</p> <p>Storage controllers</p> <p>Internal Controllers: PERC H330, H730P, H740P, HBA330</p> <p>External Controllers: H840, 12 Gbps SAS</p> <p>HBA Software RAID:S140</p> <p>Internal Boot: Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module2</p> <p>Drive bays Front drive bays: Up to 10 x 2.5” SAS/SATA (HDD/SSD) with up to 4 NVMe SSD max 76.8TB or up to 4 x 3.5 SAS/SATA HDD max 64TB Optional DVD-ROM, DVD+RW</p> <p>Power supplies: Bronze 450W (Cabled PSU), Platinum 550W (Hot plug PSU with full redundancy option)</p> <p>Sizing Form factor: Rack (1U)</p>	
8.	Rack Server	<p>HPE DL380 Gen9 Intel Xeon E5-2667v4</p> <p>Quantity 1</p>	<p>Product Type: Processor Upgrade</p> <p>Product Family: Xeon E5-2600 v4</p> <p>Processor Core: Octa-core (8 Core)</p> <p>Clock Speed: 3.20 GHz</p> <p>Thermal Design Power: 135 W</p> <p>Type HPE SmartMemoryDDR4 Registered (RDIMM) or Load Reduced (LRDIMM) or Persistent Memory (NVDIMM)</p> <p>DIMM slots available</p> <p>24 (12 DIMM slots per processor, 4 channels per processor, 3 DIMMs per channel)</p> <p>Maximum capacity (LRDIMM)</p> <p>3TB (24 x 128GB LRDIMM at 2400 MHz)</p> <p>Maximum capacity (RDIMM)</p> <p>768GB (24 x 32GB RDIMM at 2400 MHz)</p> <p>Maximum capacity (NVDIMM)</p> <p>128GB (16 x 8GB NVDIMM)</p> <p>NVDIMM support only with the E5-2600v4 processors, and RDIMMs only</p>	<p>Dr. Srilatha Chebrolu</p>

DEPARTMENT OF ELECTRICAL ENGINEERING

R&D facilities: List of Major equipment

S. No	Name of Equipment	Make/Model	Technical Specifications/Features	Qty	Faculty-In charge
1.	ESD work place system	<ul style="list-style-type: none"> Digital Storage Oscilloscope – Make: Tektronix, Model: TBS 1072B-EDU 	Bandwidth: 70Mhz, Sampling rate: 1G Sa/s, 2 Analog Channels	08	Dr. Kiran Teeparthi
		<ul style="list-style-type: none"> Function Generator- Make: Tektronix, Model: AFG 1022, 	Dual Channel, Frequency: 1 μ Hz – 5Mhz, Sampling rate: 125M Sa/s		
		<ul style="list-style-type: none"> Regulated Power Supply- Make: Keithley Model: 2231A-30-3 	Number of output channels: 3 <ul style="list-style-type: none"> Output a total of 195W of power with two 0-30V/0-3A outputs and one 0-5V/0-3A 		
		<ul style="list-style-type: none"> Digital Multimeter Make: Keithley, Model: 2110 	DC voltage: 0.1 V, 1 V, 10 V, 100 V, and 1000 V AC voltage: 0.1 V, 1 V, 10 V, 100 V, and 750 V, DC current: 10 mA, 100 mA, 1 A, 3 A, and 10 A, AC current: 1 A, 3 A, and 10 A <ul style="list-style-type: none"> Two and 4-wire resistance: 100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ, and 100 MΩ Capacitance measurement: 1 nF, 10 nF, 100 nF, 1 μF, 10 μF, 100 μF, 1 mF, 10 mF 		
2.	Artificial Transmission Line Module (400KV, 200 Kilometres)	Make: Power Research & Development Consultants Pvt. Ltd, Bangalore	Source Panel: <ul style="list-style-type: none"> 440/110 V isolated Source Transformer (3 Phase) ELC Breaker: FH204 AC-40V/0.03A 3 Phase Non-Directional Over Current Relay: EOC03, 110 V VAF Meter: EL Measure, OM 1300 Multi-Function Meter: EL 	01	Dr. Sankar Peddapati

			<ul style="list-style-type: none"> Measure, EN 8400 • Nominal Current- 1A • Input & Output Voltage: 440V/20-130V (Continuously Variable) • RS 485 based communication <p>PI Section Transmission Line:</p> <ul style="list-style-type: none"> • 400kV Line with 3 Phase Twin Moose Conductor of 200 KM length with taps at 50Km, 100Km, 150Km 200Km • Nominal Voltage/Nominal Current: 110V, 1A <p>Load Station Model:</p> <ul style="list-style-type: none"> • 3 Separate Multifunction Meter for Input, Load and Capacitor Bank: EL Measure, EN 8400 • 3 Phase Non-Directional Over Current Relay: EOC03, 110 V • RS 485 based communication • Inductive, Resistive Loading with Continuous Variable Control • 6 Step Capacitor Bank with Step Control • Nominal Voltage/Nominal Current: 110V, 1A 		
3.	Fault studies on AC Network Analyser and Sequence Components Analyser	Make: Power Research & Development Consultants Pvt. Ltd, Bangalore	<p>Sequence Components Analyser:</p> <ul style="list-style-type: none"> • 440 / 110 V Isolated Source Transformer (3 Phase) • Nominal Current – 1A, Fault Current – 5A (10 Sec), 10A (1.2 Sec) • 3 Phase Non-Directional Over Current Relay- EOC-03F, 110 V • Integrated negative sequence relay-ENS-33 • Multifunction Meter: : 	01	Dr. Sankar Peddapati

			<p>EL Measure, EN 8400</p> <p>Motor- Generator Set:</p> <ul style="list-style-type: none"> • DC Motor:3HP, 220V, 12A, 1500 R.P.M • Alternator: 2KVA,415V,2.8A, 1500 R.P.M <p>PI Section Transmission Line:</p> <ul style="list-style-type: none"> • 400kV Line with 3 Phase Twin Moose Conductor of 200 KM length with taps at 50Km, 100Km, 150Km 200Km • Nominal Voltage/Nominal Current: 110V, 1A <p>Fault Simulator:</p> <ul style="list-style-type: none"> • LG / LL / LLG / LLL / LLLG Fault with Phase Selectable LG / LL Fault 		
4.	Digital Storage Oscilloscopes	Make: Rigol Model: DS1204B	Bandwidth: 200 MHz, Sampling rate: 2 GSa/s, 4 Analog Channels	02	Dr. Jayaram N
5.		Make: Rigol Model: MSO1104Z	Bandwidth: 100Mhz, Sampling rate: 1 GSa/s, 4 Analog Channels	01	Dr. Jayaram N
6.		Make: Rigol Model: MSO05204	Bandwidth: 200Mhz, Sampling rate: 8GSa/s, 4 Analog Channels	03	Dr. Jayaram N
7.	Single-Phase Power Quality Analyzer	Make: Fluke Model: 125B Industrial scope meter	<ul style="list-style-type: none"> • Dual-input digital oscilloscope and Multimeter • 40 MHz oscilloscope bandwidth • Power measurements (W, VA, VAR, PF, DPF, Hz), • Voltage, current and power harmonics 	01	Dr. Jayaram N

8.	Three-Phase Power Quality Analyzer	Make: Kusam Model: KM-2200	<ul style="list-style-type: none"> • Easy operation to capture the power quality problem. • 8G Memory Card to Make the long-term measuring data storage. • Volts / Amps. / Hertz, Dips & Swell, Power / Energy, Unbalance, Monitor, Scope, Harmonic & Interruption functions • Current Probes 50A – 4 Qty • Current Probes 100A – 4Qty 	02	Dr. Jayaram N
9.	dSPACE	Make: dSPACE Model: 1104	Hardware: <ul style="list-style-type: none"> • DS1104 R&D Controller Board PCIe Version, MPC8240 processor with PPC 603e core, CPU clock: 250 MHz and 32 MB SDRAM • CLP 1104-connector & LED panel for DS 1104 Software: <ul style="list-style-type: none"> • CDP1104 control development software package with USB dongle • Microtec PowerPC cross compiler 	02	Dr. Jayaram N & Dr. Tejavathu Ramesh
10.	Visual IR Thermometer	Make: Fluke Model: VT02A	Temperature measurement range: -10 °C to +250 °C (14 °F to 482 °F) Temperature measurement accuracy: ± 2 °C or ± 2 % Image blending: 0%, 25%, 50%, 75%, 100%	01	Dr. Jayaram N
11.	Programmable DC Electronic Load	Make: Tenma Model: 72-13210	Voltage Measurement: <ul style="list-style-type: none"> • Range: 0-18V / 0-120V • Resolution: 0.1mV/1mV • Accuracy: ±(0.025% + 0.025% FS) Current Measurement:	01	Dr. Jayaram N

			<ul style="list-style-type: none"> • Range: 0-3A / 0-30A • Resolution: 0.1mA / 1mA • Accuracy: $\pm(0.05\% + 0.05\% \text{ FS})$ <p>Power Measurement:</p> <ul style="list-style-type: none"> • Range: 300W • Resolution: 0.01W • Accuracy: $\pm(0.1\% + 0.1\% \text{ FS})$ <p>Features:</p> <ul style="list-style-type: none"> • 4 working modes: CV/CC/CR/CW • Battery test, automatic test, OPP test, OCP test functions 		
12.	AC/DC Current Probe	Make: Tektronix Model: A622	<p>Input: 0 to 70A RMS/100A Peak AC or DC</p> <p>Frequency: Dc to 100kHz</p> <p>Output: 10 mV/A,100 mV/A</p>	01	Dr. Jayaram N
13.	Solar PV Emulator System	Make: ECOSENSE Model: SPVE001	<p>Output Ratings: Output Voltage: 0-50 V DC/Channel Output Current: 0-20 A DC/ Channel Output Power: 0-1000 W / Channel</p> <p>Line/Load Regulation: Voltage: +/- 0.1% Current: +/- 0.1%</p> <p>Voltage/ Current Measurement Accuracy: 0.1%</p>	01	Dr. Jayaram N
14.	Tower - Work Station	Make: Dell Model: Precision 5820T	<p>Processor: Intel Xeon W-2265 CPU 3.50GHz</p> <p>Memory: 32 GB</p> <p>Storage: 500 GB HDD</p>	01	Dr. Sri Phani Krishna Karri

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING**

R&D facilities: List of Major equipment

S.NO.	Name of the equipment /Item
1	Klystron Based Test Bench (X Band)
2	Gunn Based Test Bench
3	Vector Network Analyzer
4	Spectrum Analyzer with Tracking Generator
5	Antenna Radiation Pattern Measurement Set Up
9	Power Meter
10	Noise Source
11	Experimental Block of OTDR
12	Mode Observation / Characteristics Laboratory

DEPARTMENT OF MECHANICAL ENGINEERING

R&D facilities: List of Major equipment

S.NO.	Name of the equipment /Item
1	CNC LATHE -3Qnty
2	CNC MILL -3-Qnty
3	CONVENTIONAL LATHE -4 Qnty
4	UNIVERSAL MILL 2-Qnty
5	MOTORISED PLANER M/C
6	SHAPING MACHINE
7	RADIAL DRILL MACHINE
8	ROBOTIC ARM
9	ELECTRO PNEUMATIC T.K WITH PLC 2-Qnty.
10	ELECTRO HYDRAULIC T.K WITH PLC 2-Qnty.
11	PLC HMI T.K 2-Qnty.
12	FANUC SIMULATOR 3-Qnty.
13	SEIMENS SIMULATOR (3L+3M) 6-Qnty.
14	METHYLENE BLUE CLAY TESTER
15	UNIVERSAL STRENGTH MACHINE [hydraulic]
16	MOULD HARDNESS TESTER ('B' SCALE)
17	Compression Strength testing
18	Shear Strength testing
19	MUFFLE WITH INDUCTION FURNACE
20	SAND SIEVER
21	SAND RAMMER
22	PERMEABILITY TESTER
23	Arc Welding Machine with necessary accessories
24	TIG Welding Machine with necessary accessories
25	MIG Welding Machine with necessary accessories
26	Submerged arc welding machine with necessary accessories
27	Plasma arc welding machine with necessary accessories
28	Spot welding machine with necessary accessories
29	Automatic movement of welding torch: linear welding fixture
30	Bottom Pouring Stir Casting Furnace
31	Pin on Disc Wear Monitoring Apparatus
32	Low Speed Wind Tunnel
33	Computational Facility (Work Station) - IC Engines and Battery Thermal Management System

**DEPARTMENT OF METALLURGICAL AND MATERIALS
ENGINEERING**

R&D facilities: List of Major equipment

S.No	Name of the equipment
1	Electronic Balanace(0.0001g)
2	Density Measurment Kit
3	Doube Disc Polisher
4	Belt Grinder
5	Muffle Furnace(1200°C)
6	Electrolytic Cells
7	Poldi Hardness Tester
8	Optical Microscope (Inverted)
9	Stereo Zoom Microscope
10	Optical Microscope(Upright)
11	Distilled Water Equipment Set Up
12	Hot Plate (100°C)
13	Magnetic Stirrer with Hot Plate
14	pH Meter
15	Digital Stop Watches
16	Laboratory Hot Oven (100°C)
17	Ultra sonic Bath
18	Electro Chemical corrosion Analysar
19	Tubular Furnace
20	Electrolytic Cell (potentiostat)
21	Planetary Ball Mill (to be installed)

SCHOOL OF SCIENCE

R&D facilities: List of Major equipment

S.NO.	Name of the equipment /Item	Faculty-in-charge
1	Vacuum sealing unit Pelletizer	Dr. Tapas Paramanik
2	High temperature Furnace Ball Milling setup Abbe refractometer UV Cabinet Air Oven	Dr. R. Arun Kumar
3	Workstation, High temperature tubular furnace, Current source meter, Temperature controller, Nanovoltmeter	Dr J Krishnamurthy
4	Dell Precision 5820 Tower - Work Station	Dr. Sudarshan Dhua
5	Dell Precision 5820 Tower - Work Station	Dr. Kurmayya Tamminana