

List of Major Equipment



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 Kondrupolu, Tadepalligudem, W.G. Dist. – 534101

Department of Biotechnology

List of Major Equipment

S.NO	NAME OF THE INSTRUMENT	Technical Specifications	QUANTITY
1	Refrigerator	capacity: 190L	1
2	Magnetic stirrer hot plate	temp range: 20°C- 370°C stirring speed: 0-1500 RPM	2
3	Refrigerated circulating water bath	bath volume: 20L temp range: -10°C-100°C	1
4	Ph meter		2
5	Electrophoresis unit	tank dimensions(L*W*H): 16.2*9.9*2.9cm with one casting tray	1
6	UV transilluminator		1
7	UV-vis spectrophotometer	EMW range: 100-700nm	1
8	Vortex mixer		2
9	Orbital Shaker & Incubator	temp range: 5°C- 80°C speed range: 30-400 RPM	1
10	Autoclave	Working Chamber Size (Ø x D in cm / Lt): 30 x 50 cm (12x20'') / 35	1
11	Deep freezer	temp range: -10°C to -25°C capacity: 280L	
12	Laminar air flow chamber	horizontal	1
13	Refrigerated centrifuge	temp range: 0°C- 40°C Rotor1: A 24-2 (max 15000 rpm) Rotor2: A 6-50 (max 9500 rpm) Rotor3: A 6-100 (max 5000 rpm)	1
14	Microscopes (labomed- LX300)	binocular bright field	3
15	SDS-PAGE		
16	Weighing balance (Macro)	max capacity: 420g	1
17	Weighing balance (Micro)	max capacity: 220gm	
18	Weighing balance (sunrise)	max capacity: 220gm	1
19	Ice flaking machine	capacity: 35Kg/24Hr	1
20	Water bath (Mini)	bath volume:5L temp range: ambient- 99.9°C	1
21	Autoclave (Mini)	capacity: 30L	1
22	Magnetic heater stirrer	stirring speed: 50-1500RPM temp range: ambient-100°C	2

23	Leica Dark field microscope	binocular bright, dark fields & phase contrast with camera module	1
24	LG Micro wave oven	working capacity: 5L	1
25	Hot air oven	capacity: 250L temp range: +50°C to 250°C	1
26	Double distillation Unit	all quartz body capacity: 1.5L/Hr	1
27	Whirlpool 500 liters refrigerator	capacity: 500L	1
28	Fermenter		

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

S.NO	Name of the equipment /Item
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	Programme	Name of the Laboratory	Equipment Name
1		Fluid and Particle Mechanics Lab	1. Bernoulli's Theorem Apparatus
			2. Discharge Through Notches
			3. Flow Through Fluidized Bed
			4. Discharge Through Venturimeter, Orificemeter & Rotameter and Calibration setup
			5. Pitot tube Set up
			6. Fluid Friction Measurement Apparatus
			7. Flow Through Porous Medium (Darcy's Law Apparatus)
			8. Reynold's Apparatus
			9. Drag Co-efficient Apparatus
2	B.Tech (Chem.Engg)	Chemical Processing Lab	1. Jaw Crusher
			2. Vibrating Screen
			3. Cyclone Separator
			4. Plate and Frame Filter Press
			5. Sedimentation Setup
			6. Gyrotory Sieve Shake
			7. Tert Sieves
			8. Ball Mill
			9. Sigma Mixer
3		Chemical Reaction Engineering Lab	1. Iso Thermal Batch Reactor
			2. Plug Flow Tubular Reactor (Coiled tube type & Compressed air feed system)
			3. Continuous Stirred Tank Reactor (CSTR)
			4. Combined Flow Reactor (Compressed air feed system)
			5. Cascade Continuously Stirred Tank Reactor (Compressed air feed system)
			6. Packed Bed Reactor (Compressed air feed system)
			7. Condensation Polymerization Set-Up
			8. Fixed Bed Catalytic Reactor
			9. RTD Studies in CSTR
			10. RTD Studies in PFR
			11. Chemical Reactor Trainer
			12. N ₂ Cylinder
			13. Air Compressor
			14. Digital Spectrophotometer
4		Mass Transfer Lab	1. Liquid-Liquid Extraction in Packed Bed
			2. Solid-Liquid Extraction (Packed Bed Type)

			3.Sieve Plate Distillation Column
			4.Packed Bed Distillation Column
			5.Simple Steam Distillation Column
			6.Absorption in Packed Bed
			7.Vapour in Air Diffusion Apparatus
			8.Solid In Air Diffusion Apparatus
			9.Forced Draft Tray Dryer
			10.Mass Transfer with/without Chemical Reaction(Solid-Liquid System)
			11.Adsorption Studies
			12.Liquid Liquid Extraction
			13.Air Compressor
5		Process Instrumentation and Control Lab	1.Flapper Nozzle System
			2.Study of P/I & I/P Converter
			3.Control Valve Characteristics
			4.Characteristics of PID Controller
			5.Temperature Control Trainer
			6.Flow Control Trainer
			7.Level Control Trainer
			8.Pressure Control Trainer
			9.Interacting & Non-Interacting System
			10.Air Compressors
6	Ph.D	Project Equipments	1.Hydraulic Press
			2.Mechanized Extruder
			3.High Temperature Muffle Furnace
			4.Hot Air Oven
			5.Ultra Sound Sonicator
			6.Laboratory Refrigerator
			7.pH meter
7	B.Tech (Chem.Engg)	Other Equipments	1.Abbe Refractometer
			2.Digital Magnetic Stirrer with Hot Plate
			3.Digital Butyro Refractometer
			4.Bi Distillation Units Double Distillation Water Unit
			5.Electronic Weighing Scale 220gm*0.1mg
			6.Digital Conductivity Meter with Cell
			7.Manometer

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	<p>Processor: 2 * Intel Xeon Bronze 3104 1.7GHz/9.6GT/2133MHz/8.25MB/6C/Non-HT/U0/85W</p> <p>Memory: 2 * DDR4 2666 RDIMM 16GB</p> <p>Network: 1 * Dual Port Intel i350-AM2 Gigabit LAN controller + 1*Mgmt LAN</p> <p>Storage Bay: 8 * Hot-Swap 3.5/2.5" HDD Trays</p> <p>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</p> <p>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))</p> <p>Front: 1*PCI-E *8(internal HBA/RAID card)</p> <p>Graphics: 2 * Quadro P2000 5GB</p> <p>Storage: 3 * 600 GB SAS HDDs (or) 3.5" SATA3 HDD 2TB 7200RPM</p> <p>Raid: Intel RAID supporting 0/1/5</p> <p>Front I/O Ports: 2 * USB 3.0 Ports + 2 * USB 2.0 Ports</p> <p>Rear I/O Ports: 2 * USB 3.0 Ports,1*VGA port, 1 * RJ-45 Mgmt LAN port,2 *RJ-45 GbE LAN ports</p> <p>Power Supply: 2 * 1600W Power Supply</p>	Dr. Karthick Seshadri
2.	64-Core Multi-core Machine	Intel Xeon 7210	<p>Processor: Intel Xeon 7210, up to 1.50 GHZ, 64 core, 256 Threads</p> <p>Mother Board: Intel S7200 APR family</p> <p>Memory: 64 GB DDR4 LRDIMM</p> <p>Storage: 500 GB SSD and 1 x 2 TB HDDS</p> <p>Cache: 32 MB on-CPU Cache</p> <p>Chipset: Intel C-612 chipset</p> <p>Expansion: 1 x PCIe 3.0 x 16 or 1 x PCIe Gen3 X 20 (x16 or x4)</p> <p>Ethernet: 2 x ethernet Ports</p> <p>External IO: 2 x USB 3.0</p>	Dr. Karthick Seshadri
3.	Tower Server	Dell Precision 5820	<p>Processor: Intel Xeon W-2265 CPU 3.50GHz, 3504 Mhz, 12 Cores, 24 Logical Processors</p> <p>Mother Board: Intel Xeon Processors P family/Core i7 IOxAPIC</p> <p>Memory: 32 GB DDR4</p> <p>Storage: 500 GB HDD</p> <p>Cache: 32 MB on CPU Cache</p>	Dr. Karthick Seshadri

			Chipset: Intel 200 Series Chipset Family LPC Controller (C422)-A2D3 Ethernet: 2x ethernet ports External I/O: 8 USB 3.0	
4.	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
5.	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
6.	Cluster of 3 Rack Servers	DELL EMC PowerEdge R440 - Quantity 2	Processor Up to two 2nd Generation Intel® Xeon® Scalable processors, up to 24 cores per processor Memory 16 DDR4 DIMM slots, Supports RDIMM /LRDIMM, speeds up to 2666MT/s, 1TB max1 Storage controllers Internal Controllers: PERC H330, H730P, H740P, HBA330 External Controllers: H840, 12 Gbps SAS HBA Software RAID:S140 Internal Boot: Boot Optimized Storage Subsystem (BOSS):HWRAID 2 x M.2 SSDs 240GB, 480GB Internal Dual SD Module2 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,	Dr. Srilatha Chebrolu

			<p>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>	
7.	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>	Dr. Srilatha Chebrolu

DEPARTMENT OF ELECTRICAL ENGINEERING

R&D facilities: List of Major equipment

S.No.	Name of the equipment /Item
1	ESD Work place system (ESD Table, DSO, Function Generator, MO power Supply, Digital Multimeter)
2	Artificial Transmission Line Module
3	Fault studies on AC Network Analyser and Sequence Components Analyser
4	RIGOL MSO1104Z 100MHz, 4 CH Analog+ 16LA Mixed Signal Oscilloscope
5	RIGOL ANALOG 4 CH, 200MHz Non - windows Digital storage Oscilloscope (2Qty)
6	Single Phase Power Quality Analyzer (FLUKE)
7	Three Phase Power Quality Anayzer (KUSAM) KM 2200 A Current Probes - 8 Qty)
8	FLUKE Color LED Thermal imager 100000 Pixel
9	Programmable Load 300W
10	AC/DC Current Probe-100KHz (Tektronix)
11	dSPACE1104 (Qty:02) Specifications: dSPACE 1104 Consisting of i. Hardware a. DS1104 R&D Controller board Pcle version,. MPC8240, Power PC 603e core, 250MHz. with 32MB RAM. b. CLP1104 - Connector and LED Panel for DS1104 ii. Software a. CDP1104 Control Development Software Package with USB dongle. b. Microtec power PC Cross Compiler
12	Solar P.V Emulator System (ECOSENSE)
13	Dell Precision 5820 Tower - Work Station

**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 -3Qty
2	CNC MILL -3-Qnty
3	CONVENTIONAL LATHE -4 Qty
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

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