

List of Major Equipment/Facilities in each Laboratory/Workshop

Name of the Department: **ELECTRONICS AND COMMUNICATION ENGINEERING**

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1	ELECTRONIC DEVICES&CIRCUITS LAB	Oscilloscopes
		Function Generators
		Dual Power Supply
2	COMMUNICATION LAB	Oscilloscopes
		Function Generators
		Analog and Digital communication trainer kits
		Spectrum analyzer
3	DIGITAL SIGNAL PROCESSING LAB	Computers
		MAT Lab software
		DSP-Kits
4	LINEAR AND DIGITAL IC APPLICATIONS LAB	Oscilloscopes
		Function Generators
		Digital IC Trainer Kits
5	MICROPROCESSORS LAB	Microprocessor (8086)kits
		Microprocessor Interfacing kits
		Microcontroller kits
		Microcontroller Interfacing kits
6	ELECTRONIC COMPUTER AIDED DESIGN LAB	Computers
		Mentor Graphics software
		Xilinx Software Vivado
7	DIGITAL ELECTRONICS LAB	Understanding and experimentation with digital ICs
		Trainer Kits
		Hand held Digital IC Tester
8	MICROWAVE ENGINEERING LAB	X-Band Microwave Bench setup
		Fiber optic-link trainer kit
		Laser fiber optic trainer
		Oscilloscopes

List of Major Equipment/Facilities in each Laboratory/Workshop

Name of the Department:

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1	COMPUTERPROGRAMMING LAB-1	HP Server ML-10 Quad Core,4 GB RAM ,1 TB HDD-1 RDP 100AW Client Systems (ARM 1000 MHz Processor),512 MB RAM-30 Lenovo Intel DC 2.8 GHz,2 GB RAM 500 GB HDD-2 HCL Intel Core 2 Duo 2.8 GHz,1 GB RAM 160 GB HDD-1 IBM SYSTEMS- Intel P-IV 2.6GHz 256MB DDR RAM, 40GB HDD-2 HCL Dual Core 512 GB RAM ,80 GB HDD-1 LG MY PC Intel P-IV 2.6GHz 256MB DDR RAM, 40GB HDD-5 Total-42 Networking switches-4 24-port(3), 16-port(1) 10 KVA UPS-1, 15 KVA UPS-1
2	COMPUTERPROGRAMMING LAB-2	HP Server ML-10 Quad Core,4 GB RAM ,1 TB HDD-1 RDP 100AW Client Systems (ARM 1000 MHz Processor),512 MB RAM-30 IBM SYSTEMS- Intel P-IV 2.6GHz 256MB DDR RAM, 40GB HDD-7 HCL Dual Core 512 GB RAM ,80 GB HDD-4 LG MY PC Intel P-IV 2.6GHz 256MB DDR RAM, 40GB HDD-6 Total-48 Networking switches-3 24-port(2), 16-port(1) 10 KVA UPS-1
3	ELCS(English Language Communication skills Lab)	I.HCL Core2duo systems-----55 1.Intel core2duo @ 2.8Ghz 2.2GB DDR-II RAM 3.160GB SATA HDD 4.17" LCD(TFT) Monitor

		5.DVD ROM Drive 6.HCL keyboard and mouse II.HCL Dual Core(DC) Systems ----- 13 1.P-IV DC E-2140 @1.6Ghz 2.2GB DDR-II RAM 3.80GB SATA HDD 4.52 X CD ROM Drive 5.17" LCD(TFT) Monitor 6.HCL keyboard and mouse III.ACER-System-----1 1.Acer-Veriton 2.Desktop I3-6100 3. 4GB RAM 4. 1TB HDD 5.18.5 LED Monitor 6.USB key board and mouse IV.ACER-System ----- 1 1.Acer I5 Desktop 2.Intel core I5-8400 ,8th Gen 3. 8GB RAM 4. 1TB HDD 5.19.5 LED Monitor 6.key board and mouse TOTAL SYSTEMS -----70
4	IT WORKSHOP LAB	I.HCL Dual Core(DC) Systems-----27 1.P-IV DC E-2140 @1.6Ghz 2.512MB DDR-II RAM 3.80GB SATA HDD 4.52 X CD ROM Drive 5.17" CRT Monitor 6. keyboard and mouse II.IBM Systems -----10 1.Intel P-IV @2.6Ghz 2.256MB DDR RAM + 1GB DDR RAM 3.40 GB IDE HDD 4.48 X CD ROM Drive 5.1.44 MB FDD 5.15" IBM CRT Monitor 6.Key board and mouse TOTAL SYSTEMS----37
5	RESEARCH &	

	DEVELOPMENT LAB	I.ACER-Systems-----31 1. Acer I5 Desktop 2. Intel core I5 @2.8Ghz 3. 8GB RAM 4. 1TB HDD 5. 18.5 LED Monitor 6. USB key board and mouse II. ACER-System ----- 1 1. Acer I5 Desktop 2. Intel core I5-8400 ,8th Gen 3. 8GB RAM 4. 1TB HDD 5. 19.5 LED Monitor 6. USB key board and mouse TOTAL SYSTEMS ----32
6	COMPUTERPROGRAMMING LAB-3	1)HP Server ML-10 Quad Core 4 GB RAM -----1 1 TB HDD 15.6" LED Monitor 2)RDP 100AW Client Systems (ARM 1000 MHz Processor) ----- 37 512 MB RAM 15.6" LED Monitor
7	Networks Lab	1)Acer Systems Dual Core 3.2 GHz 4 GB RAM -----26 320 GB SATA HDD 15.6" LED Monitor 2) Intel Core i5 8400 2.8 GHz 8 GB RAM -----8 1 TB HDD 19.5" LED Monitor
8	Web Development Lab	1)Acer Veriton Desktop – I3-6100 – processor----- 33 HDD-1TB RAM-4GB LED MONITOR – 18.5 “ 2)HCL Dual core processor-----01 HDD – 80GB RAM – 512MB

		3)Intel Core I5-8400 Processor@ 2.80GHz----- 04 HDD – 1TB RAM-8GB LED MONITOR – 19.5” ----- TOTAL SYSTEMS ----- 38 ----- 4)15 KVA UPS (3 Phase) -----01 5) HP Laserjet P1007 --- 01
9	Object Oriented Programming Lab	1)Acer Veriton Desktop – I3-6100 processor HDD-1TB RAM-4GB LED MONITOR – 18.5 “ ----- TOTAL SYSTEMS ----- 33 ----- 2)15KVA UPS (Single Phase) ---- 01
10	Software Engineering Lab	1)Pentium Dual Core E5800 <u>processor</u> <u>@3.2</u> GHz HDD-320GB ----- TOTAL SYSTEMS ----- 34 ----- 2)10KVA UPS----- 01 3)CANON 2900B Printer-----01

List of Experimental Setup in each Laboratory/Workshop

Name of the Department: CSE

Sl. No.	Name of the Laboratory/Workshop	Experimental Set up
1	COMPUTERPROGRAMMING LAB-1	Windows Server -2008 Codeblocks with MInGW
2	COMPUTERPROGRAMMING LAB-2	Windows Server -2008 Codeblocks with MInGW
3	ELCS(English Language Communication skills Lab	GLOBARENA SOFTWARE English Lab Career Lab
4	IT WORKSHOP LAB	MS-Office -2007 Latex→>miktex-2.9 →Texeditor-4.4.1
5	RESEARCH & DEVELOPMENT LAB	MS-Office -2007 Late-→>miktex-2.9 →Texmaker-4.4.1 Android Studio-3.6 Python-3.7 R-Programming-3.5.2 Java-1.8 CodeBlocks-17.12
6	COMPUTERPROGRAMMING LAB-3	Windows Server -2008 Codeblocks with MInGW
7	Networks Lab	1)Windows 7 2)Ubuntu 3) Codeblocks with MinGW 4)Eclipse 5)Star UML 6)Open Office-4.17 7)Java1.8 8)Appserv

8	Web Development Lab	1)Windows 7 2)Ubuntu 3) Codeblocks with MinGW 4)Eclipse 5)Bitnami Lampstack-5.4.45 6) Apache Tomcat-7.0.65 7)Xampp Server 8)Weka 9) Open Office-4.17 10)Flex-2.5.35 11) Bison-3.0.2 12)Netbeans 8.2 13)Python-3.8.1/3.9.1 14) Ruby-1.9.3 15) Perl-5.18.2 16) TCL-8.6
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		17) Wireshark-2.6.6 18)NMAP-6.40 19) Java1.8
9	Object Oriented Programming Lab	2)Ubuntu 3) Codeblocks with MinGW 4)Eclipse 5)Bitnami Lampstack-5.4.45 6) Apache Tomcat-7.0.65 7)Xampp Server 8)Weka 9) Open Office-4.17 10)Flex-2.5.35 11) Bison-3.0.2 12)Netbeans 8.2 13)Python-3.8.1/3.9.1 14) Ruby-1.9.3 15) Perl-5.18.2 16)TCL-8.6 17) Wireshark-2.6.6 18)NMAP-6.40 19) Java1.8
10	Software Engineering Lab	1) Windows 7 2) Ubuntu 3) Codeblocks with MinGW 4)Eclipse 5)Star UML 6)Ruby-1.9.3 7)Perl -5.18.2 8)TCL -8.6 9)Open Office-4.17 10) Java1.8

List of Major Equipment/Facilities in each Laboratory/Workshop

Name of the Department: EEE

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1.	Basic Electrical Engineering lab	DC shunt motor coupled with DC shunt generator with accessories
2.	Power Electronics lab	Storage oscilloscope
		PSpice Software
3.	Control systems lab	MATLAB Soft ware
		Transfer function of dc generator kit
4.	Electrical machines-I LAB	Rectifier with accessories
5	Electrical machines-2 LAB	Dc shunt motor coupled with Alternator
		Heat run test
6.	Electrical Measurements and instrumentation lab	Dielectric oil testing kit
		PT Testing by comparison method
7.	Power systems lab	Performance and testing of Feeder Protection System
		Performance and testing of Generator Protection System
		Performance and testing of Transformer Protection System
8	Basic Electrical Simulation Lab	Acer-i5systems-8GB RAM-1TB HDD
		PSpice Software
		MATLAB Soft ware

List of Experimental Setup in each Laboratory/Workshop

Name of the Department: **EEE**

Sl. No.	Name of the Laboratory/Workshop	Experimental Set up
1.	Basic Electrical Engineering Lab	1. Verification of Ohms Law
		2. Verification of KVL and KCL
		3. Transient Response of Series RL and RC circuits using DC excitation
		4. Transient Response of RLC Series circuit using DC excitation
		5. Resonance in series RLC circuit
		6. Calculations and Verification of Impedance and Current of RL, RC and RLC series circuits
		7. Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single-Phase Transformer
		8. Load Test on Single Phase Transformer (Calculate Efficiency and Regulation)
		9. Three Phase Transformer: Verification of Relationship between Voltages and Currents (StarDelta, Delta-Delta, Delta-star, Star-Star)
		10. Measurement of Active and Reactive Power in a balanced Three-phase circuit
		11. Performance Characteristics of a Separately/Self Excited DC Shunt/Compound Motor

		12. Torque-Speed Characteristics of a Separately/Self Excited DC Shunt/Compound Motor
		13. Performance Characteristics of a Three-phase Induction Motor
		14. Torque-Speed Characteristics of a Three phase induction motor
		15. No load characteristics of a Three phase Alternator
2.	Electrical Circuits Lab	1. Verification of Thevenin's and Norton's Theorems
		2. Verification of Superposition, Reciprocity and Maximum Power Transfer theorems
		3. Locus Diagrams of RL and RC Series Circuits
		4. Series and Parallel Resonance
		5. Time response of first order RC / RL network for periodic non – sinusoidal inputs – Time constant and Steady state error determination.
		6. Two port network parameters – Z – Y parameters, Analytical verification.
		7. Two port network parameters – A, B, C, D & Hybrid parameters, Analytical verification
		8. Separation of Self and Mutual inductance in a Coupled Circuit. Determination of Co-efficient of Coupling
		9. Verification of compensation & Milliman's theorems
		10. Harmonic Analysis of non-sinusoidal waveform signals using Harmonic Analyzer and plotting frequency spectrum.
		11. Determination of form factor for non-sinusoidal waveform

		12. Measurement of Active Power for Star and Delta connected balanced load
		13. Measurement of Reactive Power for Star and Delta connected balanced load
3.	Electrical Machines Lab-I	1. Magnetization characteristics of DC shunt generator (Determination of critical field resistance and critical speed)
		2. Load test on DC shunt generator (Determination of characteristics)
		3. Load test on DC series generator (Determination of characteristics)
		4. Load test on DC compound generator (Determination of characteristics).
		5. Hopkinson's test on DC shunt machines (Predetermination of efficiency)
		6. Fields test on DC series machines (Determination of efficiency)
		7. Swinburne's test and speed control of DC shunt motor (Predetermination of efficiencies)
		8. Brake test on DC compound motor (Determination of performance curves)
		9. Brake test on DC shunt motor (Determination of performance curves).
		10. Retardation test on DC shunt motor (Determination of losses at rated speed)
		11. Separation of losses in DC shunt motor
4.	Control Systems Lab	1. Time response of Second order system
		2. Characteristics of Synchros
		3. Programmable logic controller – Study and verification of truth tables of logic gates, simple

		Boolean expressions, and application of speed control of motor.
		4. Effect of feedback on DC servo motor
		5. Transfer function of DC motor
		6. Transfer function of DC generator
		7. Temperature controller using PID
		8. Characteristics of AC servo motor
		9. Effect of P, PD, PI, PID Controller on a second order systems
		10. Lag and lead compensation – Magnitude and phase plot
		11. Magnetic Amplifier
		12. Simulation of P, PI, PID Controller.
		13. Linear system analysis (Time domain analysis, Error analysis) using suitable software
		14. Stability analysis (Bode, Root Locus, Nyquist) of Linear Time Invariant system using suitable software
		15. State space model for classical transfer function using suitable software -Verification.
		16. Design of Lead-Lag compensator for the given system and with specification using suitable software
5.	Electrical Machines Lab II	1. O.C. & S.C. Tests on Single phase Transformer
		2. Sumpner's test on a pair of single-phase transformers
		3. No-load & Blocked rotor tests on three phase Induction motor

		4. Regulation of a three –phase alternator by synchronous impedance & m.m.f. methods
		5. V and Inverted V curves of a three—phase synchronous motor.
		6. Equivalent Circuit of a single-phase induction motor
		7. Determination of X_d and X_q of a salient pole synchronous machine
		8. Load test on three phase Induction Motor
		9. Separation of core losses of a single-phase transformer
		10.. Efficiency of a three-phase alternator
		11. Parallel operation of Single-phase Transformers
		12. Regulation of three-phase alternator by Z.P.F. and A.S.A methods
		13. Heat run test on a bank of 3 Nos. of single-phase Delta connected transformers
		14. Measurement of sequence impedance of a three-phase alternator.
		15. Vector grouping of Three Transformer
		16.Scott Connection of transformer
6	POWER ELECTRONICS LAB	1.Study of Characteristics of SCR, MOSFET & IGBT,
		2.Gate firing circuits for SCR's
		3.Single Phase AC Voltage Controller with R and RL Loads
		4.Single Phase half controlled & fully controlled bridge converter with R and RL loads
		5.Forced Commutation circuits (Class A, Class B,

		Class C, Class D & Class E)
		6.Single Phase Cyclo-converter with R and RL loads
		7.Single Phase series& parallel inverter with R and RLloads
		8.Single Phase Bridge inverter with R and RL loads
		9.DC Jones chopper with R and RL Loads
		10.hree Phase half-controlled bridge converter with R-load
		11.Single Phase dual converter with RL loads
		12.(a)Simulation of single-phase Half wave converter using R and RL loads (b)Simulation of single-phase full converter using R, RL and RLE loads (c)Simulation of single-phase Semi converter using R, RL and RLE loads
		13.(a)Simulation of Single-phase AC voltage controller using R and RL loads (b)Simulation of Single phase Cyclo-converter with R and RL-loads
		14.Simulation of Buck chopper
		15.Simulation of single-phase Inverter with PWM control
		16.Simulation of three-phase fully controlled converter with R and RL loads, with and without freewheeling diode. Observation of waveforms for Continuous and Discontinuous modes of operation.
		17.Study of PWM techniques
7	MEASUREMENTS AND INSTRUMENTATION LAB	1. Calibration and Testing of single-phase energy Meter.
		2. Calibration of dynamometer power factor meter.
		3. Crompton D.C. Potentiometer – Calibration of PMMC ammeter and PMMC voltmeter.
		4. Kelvin's double Bridge – Measurement of resistance – Determination of Tolerance.

		5. Dielectric oil testing using H.T. testing Kit.
		6. Schering Bridge & Anderson Bridge.
		7. Measurement of 3 - Phase reactive power with single-phase wattmeter.
		8. Measurement of displacement with the help of LVDT
		9. Calibration LPF wattmeter – by Phantom testing.
		10. Measurement of 3-phase power with single watt meter and two CTs.
		11. C.T. testing using mutual Inductor – Measurement of % ratio error and phase angle of given CT by Null method. comparison
		12. PT testing by comparison – V. G. as Null detector – Measurement of % ratio error and phase angle of the given PT
		13. Resistance strain gauge – strain measurements and Calibration.
		14. Transformer turns ratio measurement using AC bridges.
		15. Measurement of % ratio error and phase angle of given CT by comparison
		16..Measurement of a choke coil using three voltmeters and three ammeters method
8	POWER SYSTEMS LAB	1. Characteristics of IDMT Over-Current Relay.
		2. Differential protection of 1- Φ transformer.
		3. Characteristics of Micro Processor based Over Voltage/Under Voltage relay.
		4. A,B,C,D constants of a Long Transmission line
		5. Finding the sequence impedances of 3- Φ

		synchronous machine.
		6. Finding the sequence impedances of 3- Φ Transformer
		7. Formation of YBUS.
		8. Load Flow Analysis using Gauss Seidal (GS) Method.
		9. Load Flow Analysis using Fast Decoupled (FD) Method.
		10. Formation of ZBUS.
		11. Simulation of Compensated Line
		12. Performance and testing of Transformer Protection System
		13. Performance and testing of Generator Protection System
		14. Performance and testing of Feeder Protection System
9	Electrical systems simulation lab	1. Design of first and second order circuits in time and frequency domain
		2. Performance evaluation of medium and long transmission lines
		3. Symmetrical component analysis
		4. Transmission Line Fault Analysis
		5. LG, LL and 3- Φ fault analysis of Transformer Converters
		6. Short Circuit Analysis of Power system models
		7. Speed Control of DC Motor
		8. Speed Control of Induction motor
		9. Design and analysis of feedback control system

		10. Transient analysis of open ended line and short circuited line
		11. Load frequency control of single area and two area power system
		12. Economic Dispatch of Thermal Units
		13. Design of Single Phase and Three Phase Inverters
		14. Design of Single Phase and Three Phase Full Converters
10	POWER SYSTEM SIMULATION LAB	1. Generation of high frequency transients through RLC circuit
		2. Voltage distribution across insulator string
		3. Comparison of lumped and distributed transmission lines
		4. Calculation of fault currents of transmission line
		5. Time constant calculation of RL circuit
		6. Time constant calculation of RC circuit
		7. Time constant calculation of RLC circuit
		8. Simulation of Resonance circuit
		9. Calculation of R, L, C, Zs of 3-phase Transmission Line
		10. Estimation of TARIFF based on load curve
11	ELECTRICAL WORKSHOP	1.Design and fabrication of reactor/ electromagnet for different inductance values.
		2.Design and fabrication of single phase Induction/three phase motor stator.
		3.Start delta starter wiring for automatic and

		manual operation.
		4.Wiring of distribution box with MCB, ELCB, RCCB and MCCB
		5.Wiring of 40 W tube, T-5, LED, Metal Halide lamps and available latest luminaries.
		6.Assembly of various types of contactors with wiring.
		7.Assembly of DOL and 3 point starter with NVC connections and overload operation.
		8.Design and development of 5 V regulated power supply
		9. Design and development of precision rectifier.
		10.Design and development of first order/ second order low pass/high pass filters with an application.
		11. Microcontroller Interface circuit for temperature/level/speed/current/voltage measurement.
		12. Peak detector using op-amplifiers
		13. Zero crossing detector using op-amplifiers
12	Basic Electrical and electronics engineering lab	1. Verification of KVL and KCL
		2.(i) Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single-Phase Transformer (ii) Verification of Relationship between Voltages and Currents (Star-Delta, Delta-Delta, Delta- star, Star-Star) in a Three Phase Transformer
		3.Measurement of Active and Reactive Power in a balanced Three-phase circuit
		4.Performance Characteristics of a Separately Excited DC Shunt Motor

		5.Performance Characteristics of a Three-phase Induction Motor
		6.No-Load Characteristics of a Three-phase Alternator
		7.Study and operation of (i) Multi-meters (ii) Function Generator (iii) Regulated Power Supplies (iv) CRO.
		8.PN Junction diode characteristics
		9.Zener diode characteristics and Zener as voltage Regulator
		10.Input & Output characteristics of Transistor in CB / CE configuration
		11.Full Wave Rectifier with & without filters
		12.Input and Output characteristics of FET in CS configuration

List of Major Equipment/Facilities in each Laboratory/Workshop

Name of the Department: **H&S**

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1.	Applied Physics Laboratory	Hall effect equipment
		Photo electric effect equipment
		Cathode ray oscilloscope
		He-Ne laser
		Function generator
		Rheostat
		Plug keys
		Ammeter
		Commutator
		DC power supply (0-30v) (0-2A)
		DC power supply (5v-1A)
		Deflection Magneto Meters
		Fiber 1mm core,0.5-NA
		High resistance keys
		Inductor (100mH)
		inductor (50mH)
		inductor variable box (1-10mH)
		Capacitor 0.1 μ f
		Variable capacitor box 0.01-10 μ f
		Resistance box (1-5k.ohm)
		Resistance box (0.1-10ohm)
		Resistance box(1-10k.ohm)
		Thermometer
2.	Engineering Physics Laboratory	Spectrometer
		Adjustable rectangular slit
		Grating (15000 lpi)
		Prisms
		Magnifying lenses
		Mercury vapour lamp
		Newton rings apparatus (Travelling Microscope)
		Sodium vapour lamp
		DC power supply (0-12v)2A
		Weighing box
		Brass wire
		Spherometer

		Screw gauge
		Meter scale
		Vernier callipers
		Steel wire
		Fiber 1mm core,0.5-NA
		Function generator
		Stop clocks
		Digital stop clock
		Spring Constant Apparatus
		Sonometer
		Aspirator bottles
		Beakers
		slotted weights
		Tuning forks set
		Pendulum bobs
		Measuring jar
		Digital multimeters
		Digital Balance

Sl. No.	Name of the Laboratory/Workshop	Experimental Set up
1	Applied Physics Laboratory	LASER Diode with powersupply & stands
		LCR kit
		LED characteristics kit
		RC Circuit set up
		Energy gap of semiconductor set up
		Laser Diode characteristics setup
		p-i-n& avalanche photo diode kit
		Solar cell characteristics kit
		Stewart gees apparatus and experimental set up
2	Engineering Physics Laboratory	Melde's apparatus
		Laser Diode characteristics setup
		Torsional pendulum set up
		Dispersive power of prism experimental setup
		Diffraction grating experimental setup
		Coupled oscillator setup
		Optical fiber communication kit
		LASER Diode with power supply & stands
		LCR kit

List of Major Equipment/Facilities in each Laboratory/Workshop

Name of the Department: Mechanical Engineering

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1	FLUID MECHANICS AND HYDRAULIC MCHINES LAB	Bernoulli's theorem Apparatus, Orifice and Mouth Piece Apparatus, Notch Apparatus, Pipe Friction Apparatus, Impact of Jet Apparatus, Venturimeter and Orificemeter Apparatus, Pelton Wheel Turbine Test Rig, Centrifugal Pump Test Rig, Centrifugal Pump Test Rig Multistage Closed Circuit, Reciprocating Pump Closed Circuit, Francis Turbine Test Rig, Kaplan turbine, Hydraulic RAM test rig (Hydraulic jump apparatus), Water Hammer
2	METALLURGY AND MATERIAL SCIENCE LAB	Binocular Metallurgical Microscope, Trinocular Metallurgical Microscope Colour Image Capture System (CCD) Camera Junior Cut-Off Machine Double Disk Polisher Hydraulic Specimen Mounting Press Jominy Quench Apparatus Rockwell & Brinell Hardness Tester
3	KINEMATICS AND DYNAMICS LAB	Single And Double Rotor, Governor Setup Cam And Follower Setup, Balancing Of Rotating Masses And Vibration Pick Up Whirling Of Shaft Apparatus, Motorized Gyroscope, Forced Vibration Set Up (Spring, Beam, Exciter, Motor, Strip Chart, Recorder), Journal Bearing Apparatus
4	PRODUCTION TECHNOLOGY LAB	Injection Molding Machine AC Arc Welding Transformer-TPA 303 Spot Welding Machine-10 KVA Universal Strength Machine Blow Molding Machine Tilting Crucible Furnace Plasma Cutting Machine Multiplaz-3500 Plasma Welding & Cutting Machine, Hydraulic Press Hydraulic Press (Hand Operated) Suitable Dies, Bending Piercing Deep TIG Welding Equipments 300amp Induction Furnace

		Sand Rammer Rapid Moisture Tester
5	ENGINEERING METROLOGY LAB	Tool Makers Micro Scope With Accessories Optical Flat, Magnetic V-Block Size 100x95x70 mm, Interchangeable Anvil Micrometer, Test Mandrel 500 mm Long Surface Roughness Tester SJ-210 Dial Indicator Stand with Plug dial Gauge
6	MECHANICS OF SOLIDS LAB	Universal Testing Machine Pendulum Impact Tester Torsion Testing Machine Spring Testing Machine Brinell Hardness Tester Shear Strength attachment for U.T.M Strain gauge Mitutoyo- dial gauge with magnetic stand (for continuous beam) Rockwell cum Brinell Hardness Tester Model AI-RABI Strain Measurement Instrument
7	INSTRUMENTATION LAB	Dead Weight Pressure Gauge tester Temperature transducers Displacement transducer (L.V.D.T) Strain gauge transducer Capacitive transducer Photo & Magnetic Pickup transducers McLeod gauge for low pressure measurement Seismic Pickup for the measurement of vibration amplitude Rotameter for flow measurement Temperature Trainer Module LVDT Trainer Temperature Trainer Thermocouple Capacitance Trainer Temperature Trainer RTD Resistance Strain Gauge Capacitive Pick Up
8	MACHINE TOOLS LAB	Lath Machines (Gujarat make , Cone Pulley drive SS & SC type) 12'' Stroke heavy duty Shaping Machine Universal / Horizontal Milling Machine 38 mm Capacity Geared Radial Drilling Machine, Mechanical Surface Grinder Universal Tool & Cutter Grinder All Geared Lathe Machine

		Slotting Machine Planner Machine Grinding Machine
9	CAD/CAM LAB	ANSYS Introductory Multi Physics Software Version 10.0 Auto Desk Inventor Professional 11 CAM Lab Package Comprising (1 Set & 5 Users) Solid Works Education Edition Network CNC Lathe Model-Clt100 CNC Mill Model-Nmt225 Profile Projector Dell Optiplex Gx520 NDT Nodes Systems Acer core i5 desktop 8GB RAM
10	THERMAL ENGINEERING LAB	Diesel Engine Cut-Section Model-1cyl, 4Stroke Petrol Engine Cut-Section Model- 1 Cyl, 2Stroke Diesel Engine Test Rig- 1 Cyl, 4-Stroke; With Electrical Alternator Loading Petrol Test Rig – 4 Cyl, 4-Stroke; Hydraulic Dynamometer Loading & Radiation Arrangement Diesel Engine Test Rig- 1 Cyl, 4-Stroke; Slow Speed With Retardation Test Experimental Refrigeration Test Rig – R134 Boiler Cut-Section Model – Lancashire Boiler Boiler Cut-Section Model –Babcock Boiler Boiler Cut-Section Model –Cochran Boiler Experimental Air-Conditioning Test Rig; With Heat Pump Facility Two Stage Air Compressor Test Rig Single Cyl, 4-Stroke Petrol Engine Test Rig With Electric Loading Si Engine Test Rig(2-Stroke) VCR CI Engine Test Rig 2-Stroke Petrol Engine Maruti ZEN engine and accessories
11	HEAT TRANSFER LAB	Thermal Conductivity of Metal Rod Apparatus Stefan Boltzmann Apparatus Critical Heat Flux Apparatus Composite Wall Apparatus Lagged Pipe Apparatus Forced Convection Apparatus Natural Convection Apparatus Thermal Conductivity of Insulating Powder

		Parallel & Counter Flow Heat Exchanger Emissivity Apparatus Heat Pipe Apparatus Pin-Fin Apparatus Unsteady State Heat Transfer Equipment Drop Wise and Film Wise Condensation
12	FUELS AND LUBRICANTS LAB	Junker's Gas Calorimeter Penskey martin apparatus Engler's viscometer Red wood viscometer-2 High precision balance Cloud point and Pour point Apparatus
13	ENGINEERING WORKSHOP LAB	25mm drilling machine (pillar type), Swage Block, Shearing Machine, Single phase Bench grinder, Cutting machine, Power wood planner machine
14	MANUFACTURING SIMULATION & PRECISION ENGINEERING LAB (M. Tech)	Flexsim software Process Simulator Software (ProModel) Automod Software Lathe tool dynamometer Hydraulic trainer Kit Pneumatic trainer Programmable Logic Controller Abrasive Jet Machine & Tool Makers Microscope Air compressor Intel pentium P4 dual core integrated intighraphic acceleration 950 2GB RAM
15	ADVANCED CAD/CAM LAB (M. Tech)	Fanuc Robo Simulation Software CNC Lathe CNC Mill CAM Lab Package Comprising (CAPsturn Ver.8.1, CAPSMILL Ver.8.1, SeeNC Turn Ver.6.1 SeeNC Mill Ver6.1)
16	Automation Lab (M. Tech)	DOBOT Magician

List of Experimental Setup in each Laboratory/Workshop

Name of the Department: Mechanical Engineering

Sl. No.	Name of the Laboratory/ Workshop	Experimental Set up
1	FLUID MECHANICS AND HYDRAULIC MCHINES LAB	1. Bernoulli's theorem Apparatus 2. Orifice and Mouth Piece Apparatus 3. Notch Apparatus 4. Pipe Friction Apparatus 5. Impact of Jet Apparatus 6. Venturimeter and Orificemeter Apparatus 7. Pelton Wheel Turbine Test Rig 8. Centrifugal Pump Test Rig 9. Centrifugal Pump Test Rig Multistage Closed Circuit 10. Reciprocating Pump Closed Circuit 11. Sudden Reduction of Pipe Cross Section 12. Francis Turbine Test Rig 13. Kaplan turbine 14. Hydraulic RAM test rig (Hydraulic jump apparatus) 15. Water Hammer
2	METALLURGY AND MATERIAL SCIENCE LAB	1. Binocular Metallurgical Microscope 2. Micrometer Eye Piece 3. Graph Micrometer 4. Grain Size Micrometer 5. Trinocular Metallurgical Microscope 6. Colour Image Capture System (CCD) Camera 7. Junior Cut-Off Machine 8. Double Disk Polisher 9. Hydraulic Specimen Mounting Press 10. Spare Mould Assembly 11. Belt Grinder 12. Muffle Furnace with Digital Indicator 13. Jominy Quench Apparatus 14. Rockwell & Brinell Hardness Tester
3	KINEMATICS AND DYNAMICS LAB	1. Single And Double Rotor 2. Governor Setup 3. Cam And Follower Setup 4. Balancing Of Rotating Masses And Vibration Pick Up 5. Whirling Of Shaft Apparatus 6. Motorized Gyroscope 7. Forced Vibration Set Up (Spring, Beam, Exciter, Motor, Strip Chart, Recorder)
		8. Journal Bearing Apparatus 9. Simple Pendulum 10. Compound Pendulum

4	PRODUCTION TECHNOLOGY LAB	1. AC Arc Welding Transformer-TPA 303 2. Spot Welding Machine-10 KVA 3. Universal Strength Machine 4. Blow Molding Machine 5. Tilting Crucible Furnace 6. Plasma Cutting Machine 7. Multiplaz-3500 Plasma Welding & Cutting Machine, Hydraulic Press 8. Hydraulic Press (Hand Operated) 9. Suitable Dies, Bending Piercing Deep 10. TIG Welding Equipments 300amp 11. Induction Furnace
5	ENGINEERING METROLOGY LAB	1. Tool Makers Micro Scope With Accessories 2. Optical Flat 3. Three Wire Set 4. Surface Roughness Tester SJ-210
6	MECHANICS OF SOLIDS LAB	1. Universal Testing Machine 2. Pendulum Impact Tester 3. Torsion Testing Machine 4. Spring Testing Machine 5. Brinell Hardness Tester 6. Cantilever Beam 7. Simply Supported Beam 8. Shear Strength attachment for U.T.M 9. Rockwell cum Brinell Hardness Tester Model AI-RABI 10. Strain Measurement Instrument 11. Continuous Beam
7	INSTRUMENTATION LAB	1. Dead Weight Pressure Gauge tester 2. Temperature transducers 3. Displacement transducer (L.V.D.T) 4. Strain gauge transducer 5. Capacitive transducer 6. Photo & Magnetic Pickup transducers 7. McLeod gauge for low pressure measurement 8. Seismic Pickup for the measurement of vibration amplitude 9. Rotameter for flow measurement 10. Temperature Trainer Module 11. LVDT Trainer 12. Temperature Trainer Thermocouple 13. Capacitance Trainer 14. Temperature Trainer RTD 15. Resistance Strain Gauge 16. Capacitive Pick Up

8	MACHINE TOOLS LAB	1. Lath Machines (Gujarat make 2. Cone Pulley drive SS & SC type) 3. 12" Stroke heavy duty Shaping Machine 4. Universal / Horizontal Milling Machine 5. 38 mm Capacity Geared Radial Drilling Machine 6. Mechanical Surface Grinder 7. Universal Tool & Cutter Grinder 8. All Geared Lathe Machine 9. Slotting Machine 10. Drill Machine Vice 11. Planner Machine 12. Grinding Machine
9	CAD/CAM LAB	1. ANSYS Introductory Multi Physics Software Version 10.0 2. Auto Desk Inventor Professional 11 3. CAM Lab Package Comprising (1 Set & 5 Users) 4. Solid Works Education Edition Network 5. CNC Lathe Model-Clt100 6. CNC Mill Model-Nmt225 7. Profile Projector
10	THERMAL ENGINEERING LAB	1. Diesel Engine Cut-Section Model-1cyl 4Stroke 2. Petrol Engine Cut-Section Model- 1 Cyl, 2Stroke 3. Diesel Engine Test Rig- 1 Cyl, 4-Stroke; With Electrical Alternator Loading 4. Petrol Test Rig – 4 Cyl, 4-Stroke; Hydraulic Dynamometer Loading 5. Diesel Engine Test Rig- 1 Cyl, 4-Stroke; Slow Speed With Retardation Test 6. Experimental Refrigeration Test Rig – R134 7. Boiler Cut-Section Model – Lancashire Boiler 8. Boiler Cut-Section Model –Babcock Boiler 9. Boiler Cut-Section Model –Cochran Boiler 10. Experimental Air-Conditioning Test Rig; With Heat Pump Facility 11. Two Stage Air Compressor Test Rig 12. Single Cyl, 4-Stroke Petrol Engine Test Rig With Electric Loading 13. SI Engine Test Rig(2-Stroke) 14. VCR CI Engine Test Rig 15. 2-Stroke Petrol Engine
11	HEAT TRANSFER LAB	1. Thermal Conductivity of Metal Rod Apparatus 2. Stefan Boltzmann Apparatus 3. Critical Heat Flux Apparatus 4. Composite Wall Apparatus 5. Lagged Pipe Apparatus

		6. Forced Convection Apparatus 7. Natural Convection Apparatus 8. Thermal Conductivity of Insulating Powder 9. Parallel & Counter Flow Heat Exchanger 10. Emissivity Apparatus 11. Heat Pipe Apparatus 12. Pin-Fin Apparatus 13. Unsteady State Heat Transfer Equipment 14. Drop Wise and Film Wise Condensation
12	FUELS AND LUBRICANTS LAB	1. Abel's Flash point Apparatus 2. Cleavland's Flash point & Fire point Apparatus 3. Saybolt Viscometer 4. Redwood Viscometer -I 5. Penetrometer Apparatus 6. Conradson Carbon residue four test apparatus with gas burner 7. Bomb calorimeter apparatus with digital thermometer 8. Junker's Gas Calorimeter 9. Penskey martin apparatus 10. Englers viscometer 11. Red wood viscometer-2 12. High precision balance 13. Drop point Apparatus 14. Distillation Apparatus 15. Cloud point and Pour point Apparatus
13	ENGINEERING WORKSHOP LAB	1. Fitting Section 2. Black Smithy Section 3. House Wiring Section 4. Carpentry Section 5. Tin Smithy Section 6. Welding Section 7. Foundry Section 8. General Tools & Equipment
14	MANUFACTURING SIMULATION & PRECISION ENGINEERING LAB (M. Tech)	1. Flexsim software 2. Process Simulator Software (ProModel) 3. Automod Software 4. Lathe tool dynamometer 5. Hydraulic trainer Kit 6. Pneumatic trainer 7. Programmable Logic Controller 8. Abrasive Jet Machine & Tool Makers Microscope

List of Major Equipment/Facilities in each Laboratory

Name of the Department: Civil Engineering

Sl. No.	Name of the Laboratory/ Workshop	List of Major Equipment/Facilities
1	SURVEYING LAB	vernier theodolite, chains, tapes, ranging rods, cross staff, arrows, prismatic compass, optical square, planimeter, box sextants, plane table, Auto level, vernier theodolite 20'sec, TS Geomax, GPS.
2	CONCRETE & HIGHWAY MATERIALS LABORATORY	Compression Testing Machine, Flow Table Motorised, Concrete Test Hammer, Vicat Apparatus with Dashpot, Blain Air Permeability Apparatus, Le-Chatelier Flask, Water Bath, Compaction Factor Apparatus, Slump Test Apparatus with Tamping Rod & Base Plate, Consistometer, Cylindrical Metal Measures (Sets of 3), Los Angeles abrasion Testing Machine, Universal Penetrometer, Marshall Apparatus, California Bearing Ratio Test Apparatus, Crushing Value Apparatus, Aggregate Impact Tester with Blow Counter, Deval Abrasion Testing Machine, Ductility Testing Machine, Ring & Ball Apparatus, Flash Point (Open) & Fire Point Pensky-Martens Apparatus, Centrifuge Extractor, Lab Oven Thermostatically Controlled, Electronic weighing Balance, Vicat Apparatus with Dashpot, Buoyancy Balance, concrete mixer, CBR Moulds 2, Flexure testing Machine, UPV Pundit Lab, vibrating table, bushnell velocity speed gun, viscometer.
3	ENGINEERING GEOLOGY LAB	Minerals specimens, Rock specimens, Structural Geology Models, Streak plates, Geological map of India Karimnagar and Warangal, Microscope, Globe.
4	SOIL MECHANICS LAB	Liquid Limit Device, Plastic Limit Set, Shrinkage Limit Set, Core Cutter, Sand

		Poring Cylinder Apparatus, Grain Size Analysis Set, Constant Permeability Set, variable head permeability set, compaction test apparatus light compaction, proctor penetrometer, oven, electronic weighing balance, hand operated extractor, 10KG Conta scale, consolidation apparatus single gang, unconfined compression tester, triaxial outfit motorized, direct shear apparatus, vane shear apparatus, consolidation apparatus 3 gang, proctor compaction (heavy), Vernier callipers, Desiccators.
5	CAD LAB	LENOVO SYSTEMS 1) Intel Pentium CPU Dual core 2.8 GHz 2nd Generation 2) 2GB DDR3 RAM 3) 500GB HDD 4) 18.5" wide screen LCD LG SYSTEMS 1) Intel P-IV@2.66 GHz processor 2) GB DDR3 RAM 3) 40GB HDD 4) 15"&17" CRT Monitors UPS(12.5 KVA, 30 Minutes Back Up), Networking Equipment.
6	ENVIRONMENTAL ENGINEERING LAB	B.O.D Incubator, C.O.D Apparatus, Digital Conductivity Meter, Colorimeter, PH Meter, Water Bath, Turbidity Meter, Jar Test, Digital Weighing Balance, Dissolved Oxygen Analyser, Oven, Refrigerator, Auto Clave, Noise level meter.

List of Major Equipment/Facilities in each Laboratory

Name of the Department: AICTE IDEA LAB

S. No.	Name of Equipment	Type of Equipment
1	Laser Cutter	Mandatory Equipment
2	Vinyl Cutter	Mandatory Equipment
3	3D Printer	Mandatory Equipment
4	3D Scanner	Mandatory Equipment
5	CNC Router	Mandatory Equipment
6	Mini Desktop Lathe cum Milling	Mandatory Equipment
7	Drilling M/c 1 HP Motor	Mandatory Equipment
8	Handheld High Speed Drilling M/c-15000 RPM with accessories - 2 Nos.	Mandatory Equipment
9	Benchtop Grinder Machine	Mandatory Equipment
10	Solder stations (5 nos)	Mandatory Equipment
11	Desoldering M/c	Mandatory Equipment
12	Advanced, motorized Sewing Machine	Mandatory Equipment
13	Wood Lathe	Mandatory Equipment
14	Power Tools	Mandatory Equipment
15	Portable Welding M/c	Mandatory Equipment
16	Refrigerator	Mandatory Equipment
17	Normal and Microwave Oven	Mandatory Equipment
18	Magnifying Glass with Stand- 2 No.	Mandatory Equipment
19	Digital Microscope	Mandatory Equipment
20	Mixed Signal Oscilloscope	Mandatory Equipment
21	Digital Storage Oscilloscope	Mandatory Equipment
22	Signal Generator	Mandatory Equipment
23	Variable Power Supply	Mandatory Equipment
24	Benchtop Multimeter	Mandatory Equipment
25	Projector	Mandatory Equipment
26	Heavy Duty Laser Printer	Mandatory Equipment
27	PCB Milling Machine*	Mandatory Equipment
28	Smart Board	Mandatory Equipment
29	Computer Workstation in networking- 5 Nos	Mandatory Equipment
31	Hot Air Gun- 5 Nos.	Mandatory Consumables
32	Measuring Equipment [Vernier calliper (0-200/0.01), Vernier height gauge (0-1000mm), Micrometer 0-50, 50-100/0.001 inside and outside)], Metal Scale etc	Mandatory Consumables
33	Fire Extinguisher - 2No	Mandatory Consumables
34	First Aid Box - 2No	Mandatory Consumables
35	Digital Multimeter (5 units)	Mandatory Consumables
36	Clothes Iron (5 units)	Mandatory Consumables
37	Electronic Component Repository (LCR Meter, Variac etc) – 1No	Mandatory Consumables

38	3D printer Filament – 2 rolls	Mandatory Consumables
39	Acrylic Sheets – 2mm, 3mm, 4mm, 5mm - All of area 8ftX4ft – 2sheets each	Mandatory Consumables
40	Foam Sheets – 8mm, 10mm, 12mm, 15mm - All of area 8ftX4ft – 2sheets each	Mandatory Consumables
41	Ply Boards - 8mm, 12mm, 18mm - All of area 8ftX4ft – 2sheets each	Mandatory Consumables
42	Nylon Rods – 12mm, 15mm, 18mm, 25mm – All of length 1Mtr – 5 each	Mandatory Consumables
43	Nuts – 3mm, 4mm, 5mm, 6mm, 8mm, 10mm, 12 mm – 100 each	Mandatory Consumables
44	Bolts – dia (3mm, 4mm, 5mm, 6mm, 8mm, 10mm, 12 mm) length (1", 1.5", 2", 2.5") – 100 each	Mandatory Consumables
45	Screws – 3mm, 4mm, 5mm – 100 each	Mandatory Consumables
46	Washers – 3mm, 4mm, 5mm, 6mm, 8mm, 10mm, 12mm – 100 each	Mandatory Consumables
47	Studs – 6mm, 8mm – length 1mtr – 5 each	Mandatory Consumables
48	Nails – 1", 2", 3" – 100 each	Mandatory Consumables
49	Adhesives – Mseal, Feviquick, fevibond – 10each	Mandatory Consumables
50	2Way Tapes - 20	Mandatory Consumables
51	PVC Pipes – 0.75", 1", 1.5", 2.5", 3" length 10ft – 1each	Mandatory Consumables
52	Aluminum Channels – L,C,Box, Striplength 12ft – 2 each	Mandatory Consumables
53	PCB Drill Bits - 0.5mm, 0.8mm, 1mm – 20 each	Mandatory Consumables
54	Drill Bits – 3mm, 4mm, 5mm, 6mm – 20 each	Mandatory Consumables
55	Drill Bits – 8mm, 10mm, 12mm – 5 each	Mandatory Consumables
56	Carpentry Boring Bits – Entire Kits - 1	Mandatory Consumables
57	Electronic Active and Passive components – Resistors, Capacitors, Diodes, Transistors – 10 each	Mandatory Consumables
58	USB Cables – for connecting Arduino and other development boards - 10	Mandatory Consumables
59	Radium Cutter Knives - 10	Mandatory Consumables
60	Glue Sticks - 50	Mandatory Consumables
61	Hack Saw Blades 6", 12" – 10 each	Mandatory Consumables
62	9V Battery Snaps - 20	Mandatory Consumables
63	LAN Cables – for connecting Raspberry pi - 5	Mandatory Consumables
64	9V Batteries - 20	Mandatory Consumables
66	Hacksaw (5 Nos.)	General & Mechanical

		Mandatory Tools
67	Micro Chisel Set (3 Nos.)	General & Mechanical Mandatory Tools
68	Pliers (3 Sets)	General & Mechanical Mandatory Tools
69	Manual PCB Drilling Machine (3 Nos.)	General & Mechanical Mandatory Tools
70	PCB power Drilling Machine (3 Nos.)	General & Mechanical Mandatory Tools
71	Cordless Drilling Machines (2 Nos.)	General & Mechanical Mandatory Tools
72	Jigsaw Machines (2 Nos.)	General & Mechanical Mandatory Tools
73	Power Circular Saw (2 Nos.)	General & Mechanical Mandatory Tools
74	Files Set (2 Sets)	General & Mechanical Mandatory Tools
75	File Handles (1 Set)	General & Mechanical Mandatory Tools
76	Needle Files (2 Sets)	General & Mechanical Mandatory Tools
77	Pipe Vice (2 Pcs)	General & Mechanical Mandatory Tools
78	Mini HackSaw (5 Nos.)	General & Mechanical Mandatory Tools
79	Ball Peen Hammer (5 Nos.)	General & Mechanical Mandatory Tools
80	Steel Shaft Claw Hammer (5 Nos.)	General & Mechanical Mandatory Tools
81	Nylon Mallet (5 Pcs)	General & Mechanical Mandatory Tools
82	Rubber Mallet (5 Pcs)	General & Mechanical Mandatory Tools
83	Allen Key Set (3 Sets)	General & Mechanical Mandatory Tools
84	Dremel multi tool kit (2 Nos.)	General & Mechanical Mandatory Tools
85	Double ended spanner sets (2 Sets)	General & Mechanical Mandatory Tools
86	12 Piece Open ended Spanner Set (2 Sets)	General & Mechanical Mandatory Tools
87	Belt and Disc Sanding Machine (1 No.)	General & Mechanical Mandatory Tools
88	Scroll Saw Machine (1 No.)	General & Mechanical Mandatory Tools
89	Tool Wall covering Perforator (3 pcs)	General & Mechanical Mandatory Tools
90	Dremel Moto Saw	General & Mechanical Mandatory Tools
91	Bench Grinding Machine	General & Mechanical Mandatory Tools
92	Power Return Measuring Tape (5 Nos.)	General & Mechanical Mandatory Tools
93	Tri Square 8" (5 Nos.)	General & Mechanical Mandatory Tools

94	Stainless Steel Rule (5 Nos.)	General & Mechanical Mandatory Tools
95	Digital Vernier Caliper (5 Nos.)	General & Mechanical Mandatory Tools
96	Spirit Level (5 Nos.)	General & Mechanical Mandatory Tools
97	Dremel Cordless Rotary Tool	General & Mechanical Mandatory Tools
98	Power Router	General & Mechanical Mandatory Tools
99	Sewing Machine	General & Mechanical Mandatory Tools
100	Impact Drill (3 Units)	General & Mechanical Mandatory Tools
101	Ratchet Set (2 Units)	General & Mechanical Mandatory Tools
102	Router Bit Starter Kit	General & Mechanical Mandatory Tools
103	Scroll Saw	General & Mechanical Mandatory Tools
104	Hot Air Blower With Soldering Iron (5 Nos)	Electrical Tools
105	Tin Cutter with Spring (10 units)	Electrical Tools
106	Centrifugal Blower	Electrical Tools
107	Screwdriver Sets (2 sets)	Electrical Tools
108	Cutting Mats (5 Nos.)	Electrical Tools
109	Vacuum Cleaner (2 Nos.)	Electrical Tools
111	Micrometer - 5 Nos	Electrical Tools
112	Glue Gun-5 Nos	Electrical Tools
113	Air Compressor	Electrical Tools
114	Allen Set Wrench (5 set)	Electrical Tools
115	Tongue and Groove Pliers (5 pcs)	Electrical Tools
116	Non-contact voltage tester (5 pcs)	Electrical Tools
117	Wire Stripper (5 pcs)	Electrical Tools
118	Fish Tape (2 pcs)	Electrical Tools
119	Flashlights (2 pcs)	Electrical Tools
120	DC Regulated Power Supply (3 units)	Electrical Tools
121	Solder Wick (10 pcs)	Electrical Tools
122	Filament Dehydrator	Electrical Tools
123	Reflow Oven	Electrical Tools
124	Glass Cutter	Electrical Tools
125	Gypsum (10kg)	Electrical Tools
128	Oscilloscope (4 units)	Electrical Tools
129	C-Clamp (10 pcs)	Networking Tools
130	Ratchet clamp 8 inches/200mm (10 pcs)	Networking Tools
131	Baby Vice 60 mm (5 pcs)	Networking Tools
132	Bench vices (5 units)	Networking Tools
133	Anvil	Networking Tools
134	Coil Winding M/c motorized	Optional Equipment's
135	Plotter -Printer	Optional Equipment's

136	HAM Radio transceiver, antenna and related equipment	Optional Equipment's
137	Relevant Software (Academic Licenses)	Optional Equipment's
138	Sensor set including sensors for Home/ Industry/ Agriculture Automation, Medical diagnosis	Optional Consumables
139	Arduino UNO boards (10 sets including USB A to B cable+ male -male connecting wires+ female to female connecting wires+ male -female connecting wires)	Optional Consumables
140	NodeMCU (ESP8266) boards (10 sets (10 sets including USB A to B cable + male -male connecting wires + female to female connecting wires+ male - female connecting wires)	Optional Consumables
141	Raspberry Pi 4 boards (05 sets including HDMI - mini HDMI connector, Memory card of 8 GB, adaptor, casing)	Optional Consumables
142	BeagleBone AI for Artificial Intelligence based applications (5 sets)	Optional Consumables
143	BeagleBone -Black-Wireless 5 sets)	Optional Consumables
144	Peripheral sets for Arduino/ NodeMCU/ Raspberry Pi (10 sets)	Optional Consumables
145	ESP32 CAM Development Board WiFi+Bluetooth with OV2640 Camera Module (5 sets)	Optional Consumables
146	Solnoi Electronics Raspberry Pi 3 Camera Module Night Vision Camera (5 sets)	Optional Consumables