



GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING (Autonomous)

Approved by AICTE & Affiliated to Andhra University, Visakhapatnam from 2022-23

(Affiliated to JNTUK, Kakinada upto 2021-22)

Re-accredited by NAAC twice with 'A' Grade with a CGPA of 3.47/4.00

Madhurawada, Visakhapatnam - 530048

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING **DETAILS OF RESEARCH FACILITIES AVAILABLE (EQUIPMENT, SOFTWARE'S):**

S. No.	Equipment / Software	Utilization
1.	OPAL-RT OP 4512 – Real-Time simulator for Rapid Prototyping and HIL validation.	<ul style="list-style-type: none"> • E-mobility research activities
2.	JMAG 18 Education – Professional – Network (2 User)	<ul style="list-style-type: none"> • To develop and design electric, electronic machinery such as motors, actuators, circuit components and antennas. • To create and analyze 1-D/2-D/3-D FEM based motor models. • Finite Element Method (FEM) analysis to use in a circuit/controller to go with Saber RD simulator.
3.	Synopsys Asia Pac SABER University Bundle (2019) consisting of – SABER RD, SABER Component Library, SABER Harness, SABER Inspects, SABER Run Time, SABER Simulator, SABER Sketch.	Simulation software for Power Electronics and Drives systems
4.	<ul style="list-style-type: none"> • Siemens PLC Trainer Kit • AC Motor Control Trainer • Delta PLC Trainer 	<ul style="list-style-type: none"> • To give the demo about Programmable Logic Controllers using Ladder Logics • To establish Human Machine Interface (HMI) • To control the Motor using Variable Frequency drive.
5.	MATLAB 2017b a. Matlab 9.2 b. Simulink 8.9 c. Control System 10.2 d. Sim Power Systems 6.7 e. Simscape 4.2 f. Neural Network 10.0 g. Fuzzy Logic 2.2.25	<ul style="list-style-type: none"> • Simulation of control techniques using MATLAB. • Simulation of Compensation, Network coding for Control System Problems. • For Simulation studies at M. Tech. and leading to Research work.
6.	PSCAD X4 Academic 5 user Network License	<ul style="list-style-type: none"> • To perform and analyze power systems transients. • To simulate the time domain instantaneous responses (electromagnetic transients) of electrical systems. • To design and analyze HVDC, SVC, FACTS and Power Electronic Converters and their control circuits and leading to research work.

7.	Synopsys Asia Pac SABER University Bundle (2016) consisting of – SABER RD, SABER Component Library, SABER Harness, SABER Inspects, SABER Run Time, SABER Simulator, SABER Sketch.	Simulation software for Power Electronics and Drives systems
8.	MATLAB (Release R2015b) a. Matlab 8.5 b. Simulink 8.5 c. Control System Toolbox 9.9 d. Sim Power Systems 5.8 e. Simscape 3.13 f. Neural Network 8.3 g. Fuzzy Logic 2.2.21	<ul style="list-style-type: none"> • Simulation of control techniques using MATLAB. • Simulation of Compensation, Network coding for Control System Problems. • For Simulation studies at M. Tech. and leading to Research work.
9.	DELL Optiplex 3020 SFF Desktops Intel Dual Core, 2GB RAM, 500GB HDD, AOC E1670SW Led Monitor Windows 8.1 OS Software- 8No's	To perform and analyze Power System and Power Electronic Drives Lab experiments and research & development work in collaboration with Industries.
10.	Static Converter – 8 No's	To perform and analyze Power Electronic Drives Lab experiments and research & development work in collaboration with Industries.
11.	Labview and Multisim NI Academic Site License – LabVIEW Teaching only. NI Academic Site license – Multisim Teaching only	To perform and analyze Power Electronic Drives Lab experiments which includes in Teaching and research & development work in collaboration with Industries.
12.	Generator Protection Scheme – 1 No. Transformer Protection schemes-1 No.	<ul style="list-style-type: none"> • To perform and analyze Generator Protection scheme with various types of faults for Effective teaching & research work. • To perform and analyze Transformer Protection scheme with various types of faults for Effective teaching & research work.

13.	Clamp on Power meter – 1 No. Clamp on Current Probes – 16 No's Software CW Viewer – 1 No's Digital Storage Oscilloscope – 1 No.	To Perform and analyze of power quality related to experimental research work: <ul style="list-style-type: none"> • Measurement of Instantaneous values • Power Quality Measurement • Demand Management • Harmonics Measurement • Waveform Measurement • Voltage Fluctuation Measurement • To perform and analyze power system signals leading to research work. • Amplitude, period, and duty ratio for each period in various modulation signals • Current, voltage, and period for each switching cycle as the load fluctuates in a switching power supply • Output level of each sensor per revolution in engine or motor • Clock count in serial data • Stepping motor revolution pulses • Optical disk tracking error signals • Interrupt signals from microcontrollers.
14.	LENOVA Think Centre M72 Desktop (Core i3) Intel core i3, 2 nd Gen, 3220 Processor, 2GB RAM, 500GB HDD, 10/100Mbps Ethernet Card (with 18.5" wide LCD Monitor) – 26 No's LAN Connected.	To undertake simulation centered Lab activities in Electrical Systems and Simulation Laboratory leading to UG and PG projects.
15.	<ul style="list-style-type: none"> • Three Phase Semi converter with DC Load • Four Quadrant Chopper Fed DC drive • Three Phase AC Voltage controller with motor load • Three Phase PWM Inverter with R and RL load 	To perform and analyze Power Electronics and Drives Lab experiments for effective teaching and research and development activity.
16.	EDWIN-XP Version 1.90 Software for Spice Simulation – 5 User (Schematic Editor, Mixed mode Simulator, ED Spice Simulator, Micro Controller Co simulation, VHDL Co-simulation, PCB layout editor, board analyzers, fabrication manager, 3D editors and viewers)	<ul style="list-style-type: none"> • Simulation of various Power Electronic converter circuits and drives for various applications. • All the above simulation studies for effective teaching, research and development activity.

17.	Transmission Line (Power Transmission Line Trainer)	<ul style="list-style-type: none"> • To perform and analyze Power transmission line model. • Design of prototype FACTS devices, leading to research work. • To perform and analyze Reactive Power Compensation.
18.	MATLAB (Release R2009a) Upgraded to (R2009b) a. Simulink – 5 User b. Simpower system – 5 User	<ul style="list-style-type: none"> • Simulation of Power System analysis like load flows, fault analysis, stability and control techniques using MATLAB/ SIMULINK. • All the above simulation studies for effective teaching, research and development activity.
19.	ORCAD Capture – 5 User ORCADPSPICE A/D – 2 User License	<ul style="list-style-type: none"> • Simulation of various Power Electronic converter circuits and drives for various applications • All the above simulation studies for effective teaching, research and development activity.
20	<ul style="list-style-type: none"> • Hardware- DS1104 R &D Controller Board PCIeVersion • Clp1104- Connector and LED • Software- CDP1104 Control Development Software package with USB dongle • Microtec PowerPC cross Compiler. 	For AICTE sponsored Research Project on Direct Torque Controlled Induction Motor Drive for Hybrid Electric Vehicles with Space Vector Modulated Sliding Mode Controller to Reduce Torque Ripple
21	<ul style="list-style-type: none"> • NI myRIO – 1900 (2 Nos) • sbRIO-9607 (4 Nos.) • LabVIEW-RT (5licenses)- • LabVIEW FPGA (5 Licenses) 	<ul style="list-style-type: none"> • Real time embedded evaluation • FPGA and microprocessor applications • Control of Power Electronic systems • Signal Processing applications • Control systems evaluation
22	<ul style="list-style-type: none"> • 8051 Microcontroller Training Kit • Stepper Motor Interface • DC Motor • LCD Interface 	<ul style="list-style-type: none"> • To interface with different kinds of equipment and to control. • To generate various waveforms
23	<ul style="list-style-type: none"> • Voltage Source Inverter • IGBT Inverter Module 	<ul style="list-style-type: none"> • To perform and analyze Power Electronics and Drives Lab experiments for effective teaching & research.

24	<ul style="list-style-type: none"> • LV25-P/SP5 Voltage Sensor LEM USA Make • LA55-P Current Sensor LEM USA Make • Evaluation Board for current Sensor VP Make • Evaluation Board for Voltage Sensor VP Make • 15V Power Supply VP Make 	<ul style="list-style-type: none"> • For Research Project on Direct Torque Controlled Induction Motor Drive for Hybrid Electric Vehicles with Space Vector Modulated Sliding Mode Controller to Reduce Torque Ripple
25	<ul style="list-style-type: none"> • Induction motor coupled with DC Machine. • 3 Phase Isolation Transformer 	<ul style="list-style-type: none"> • For Research Project on Direct Torque Controlled Induction Motor Drive for Hybrid Electric Vehicles with Space Vector Modulated Sliding Mode Controller to Reduce Torque Ripple