

➤ DC Electrical Machines lab

In this Lab Students are able to learn how to

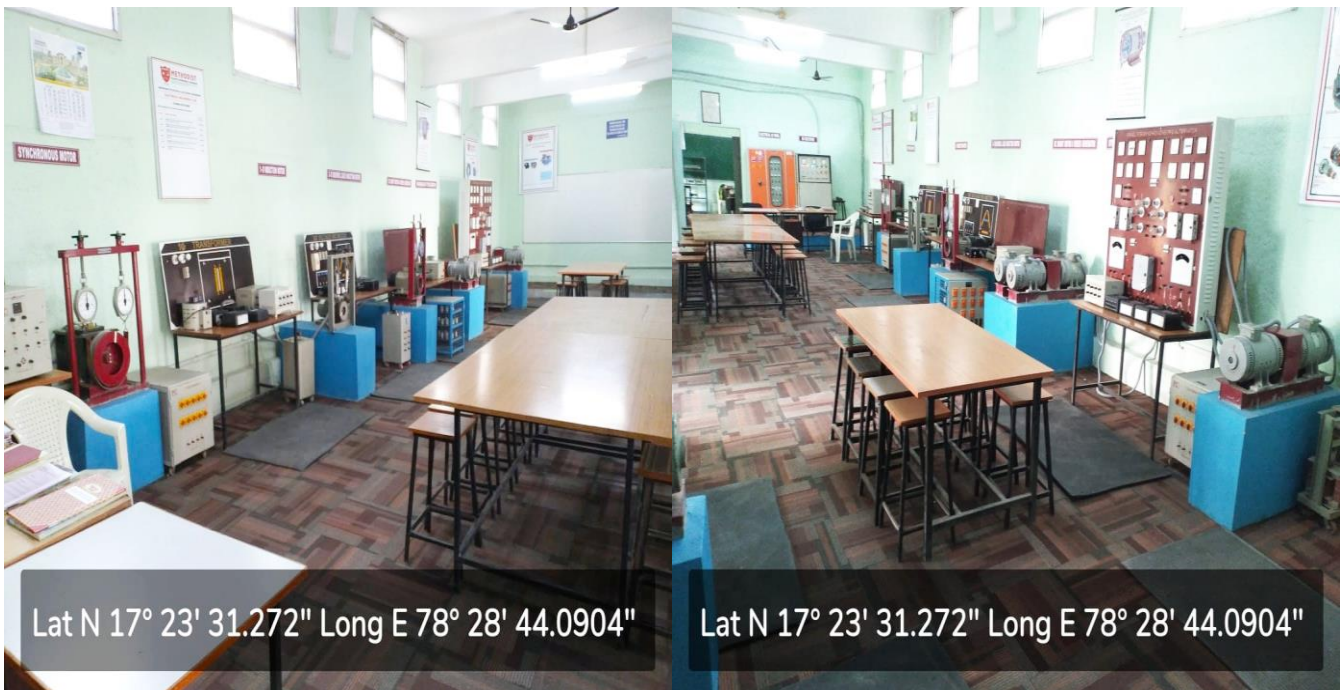
- ★ Apply and conclude the principles of Electrical Machines through laboratory experimental work.
- ★ Construct the circuit to perform experiments, measure, analyze the observed data & come to a conclusion.
- ★ Organize reports based on performed experiments with effective demonstration of diagrams and characteristics /graph.
- ★ Demonstrate the starting & speed control of various DC motors.
- ★ Determine efficiency & voltage regulation of electrical machines by various test.
- ★ Compare the performance characteristics of different electrical machines



➤ AC Electrical Machines lab

In this Lab Students are able to learn how to

- ★ Verify the theory and working of electrical machines through laboratory experimental work.
- ★ Make circuit diagram connections to perform experiments, measure, analyze the observed data to come to a conclusion.
- ★ Organize reports based on performed experiments with effective demonstration of diagrams and characteristics/graphs.
- ★ Determine the different parameters of a three-phase alternator and its regulation.
- ★ Determine the different parameters of a three-phase synchronous motor as well as its 'V' and 'inverted V' curves.
- ★ Compare the performance characteristics of different electrical machines



➤ Electrical CircuitsLab

In this Lab Students are able to learn how to

- ★ Evaluate the time response and frequency response characteristics of R,L, C Series and parallel circuits
- ★ Simplify the complicated circuits using Thevenin's, Norton's and Superposition theorems
- ★ Examine various parameters of a two-port network
- ★ Develop code to obtain transient analysis of electrical circuits using spice
- ★ Evaluate the three phase power of balanced loads
- ★ Analyze the networks from a given transfer function



➤ Control System Lab

In this Lab Students are able to learn how to

- ★ Understand Performance of P, PI and PID Controllers
- ★ Develop PLC programs for certain applications
- ★ Make use of the knowledge of Data acquisition system and Industrial process control in real world
- ★ Develop transfer function of various control system plants practically by conducting the experiments
- ★ Design and Simulate the Programming and control system concepts using MATLAB
- ★ Design of lag and lead compensation by using Networks



➤ Power System Lab

In this Lab Students are able to learn how to

- ★ Interpret positive, negative and zero sequence Impedance of Transformer and Alternator
- ★ Analyze the performance of transmission lines
- ★ Determine the dielectric strength of oil and the efficiency of string insulators
- ★ Explain Voltage and current relay settings
- ★ Measure the capacitance of three core cable
- ★ Understand the operation of Differential protection of transformer



➤ Digital Electronics and Logic design Lab

In this Lab Students are able to learn how to

- ★ Demonstrate working of logic gates and logic families
- ★ Examine and realization of combinational logic circuits and use of PLC's
- ★ Examine the process of A/D and D/A conversion
- ★ Interpret sample and hold circuit , multiplexer
- ★ Analyze the working of sequential circuits
- ★ Design the code converters, coders, and flip flops using Multisim



➤ Power Electronics Lab

In this Lab Students are able to learn how to

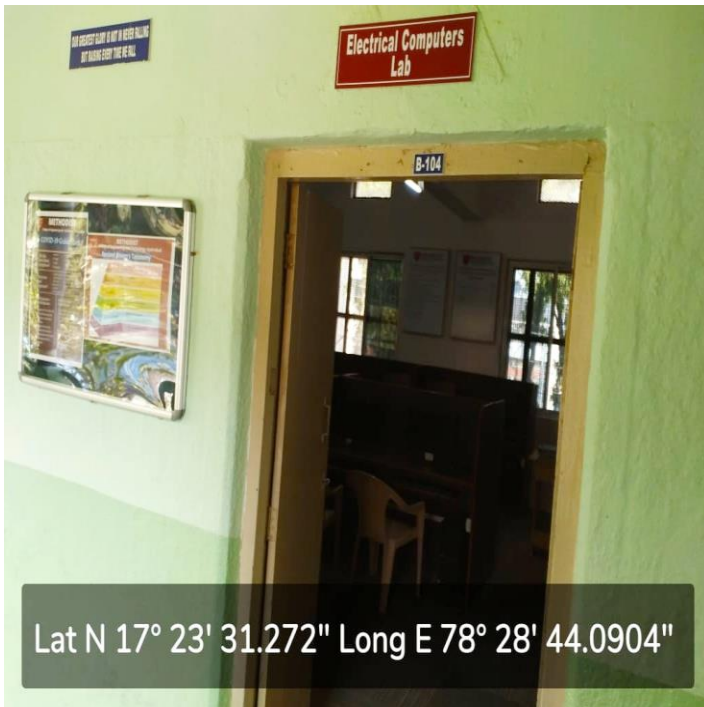
- ★ Classify and design different triggering circuits of SCR and MOSFET
- ★ Analyze different commutation circuits of SCR
- ★ Explain and make use of controlled rectifiers to control the speed of DC motors
- ★ Explain the applications of cyclo-converters and AC voltage controllers
- ★ Analyze Chopper circuits
- ★ Design and Simulate different power electronics circuits using MATLAB software



➤ Computer Aided Electrical Drawing Lab

In this Lab Students are able to learn how to

- ★ Identify and draw different components of electrical systems G
- ★ Draw different control and wiring diagrams
- ★ Draw winding diagrams of electrical machines
- ★ To understand the terminology of electric circuit and electrical components
- ★ Familiarize with electrical machines, apparatus and appliances
- ★ To acquire knowledge on various Electrical Engineering software



➤ Electrical Simulation Lab

In this Lab Students are able to learn how to

- ★ Compose (Write) MATLAB code using some basic commands
- ★ Develop MATLAB code for analyzing power system network by obtaining line parameters, Z, Y matrices, and Economics of power systems
- ★ Simulate the concepts of Electrical Circuits, to design a led, lag, led and lag compensator and obtain the characteristics by Control Systems and interpret data
- ★ Demonstrate (Determine) the knowledge of programming environment, compiling, debugging, linking and executing variety of programs in MATLAB
- ★ Demonstrate ability to develop Simulink models for various electrical systems
- ★ Validate simulated results from programs/Simulink models with theoretical calculations

