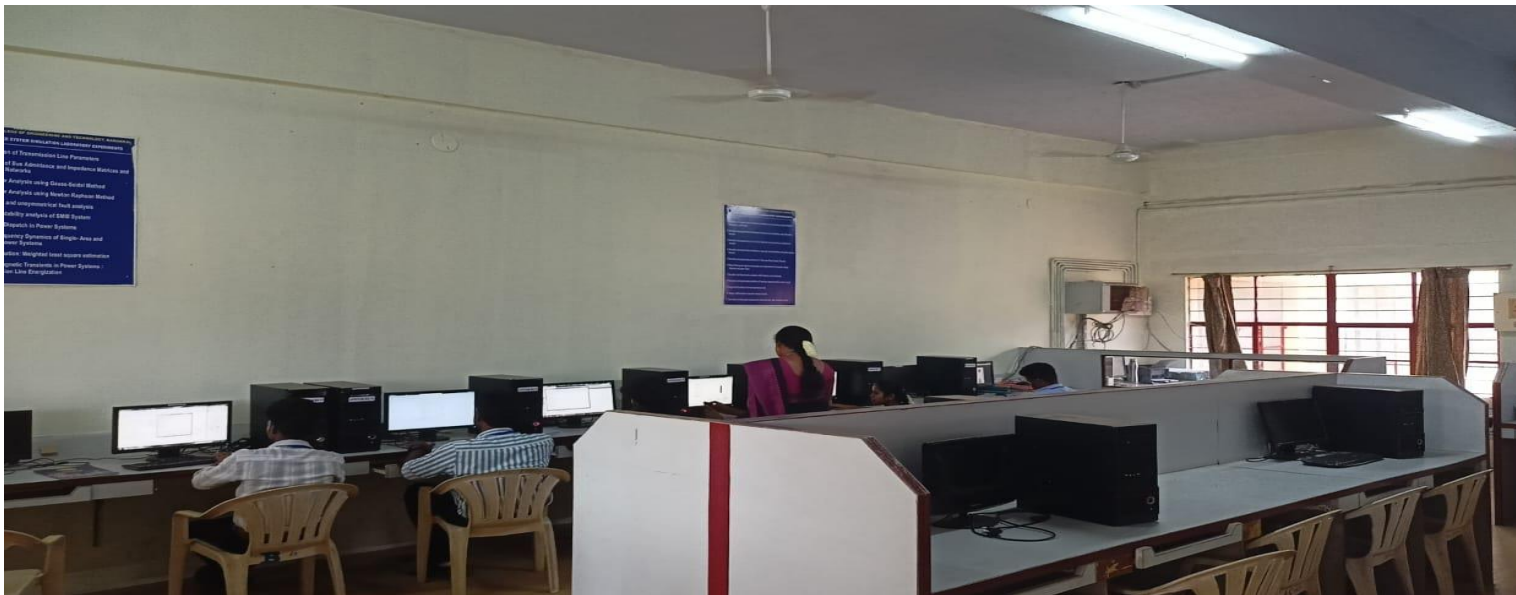


Faculty of Electrical Engineering
B.E. Electrical and Electronics Engineering
(R 2021) Semester – V

Faculty of Electrical Engineering
B.E. Electrical and Electronics Engineering
(R 2021) Semester – VI

MAJOR EQUIPMENT

Course Code: EE3611 Course Title: POWER SYSTEM LABORATORY Subject Incharge: Dr. R.Banupriya		
Sl.No.	Description of Equipment	Required numbers (for batch of 30 students)
1	Personal Computers (Intel Core i5 or i7, 500 GB, 8 GB RAM)	30
2	Laser Printer	1
3	Dot matrix Printer	1
4	Server (Intel Core i7, 2 TB, 8 GB RAM or higher) (High Speed Processor)	1
5	Software: EMTP / ETAP / CYME / MIPOWER / any Power system simulation software	5
6	Compilers: C / C++ / Matlab	30



SAFETY MEASURES

- **General Rules of Conduct in Laboratories are displayed.**
 - **Specific Safety Rules for students are displayed.**
 - **Fire Extinguisher and First aid kit are regularly inspected and restocked as necessary.**
 - **All electrical wires are protected by using MCB.**
 - **Well trained technical supporting staff.**
 - **Periodical servicing of the lab equipments.**
 - **Maintaining a clean and organized laboratory.**
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COURSE OBJECTIVES:

- 1 To provide a better understanding of modelling of transmission lines in impedance and admittance forms.
- 2 To apply iterative techniques for power flow analysis and to carry out short circuit and stability studies on power system.
- 3 To analyze the load – frequency and voltage controls.
- 4 To analyze optimal dispatch of generators and perform state estimation.
- 5 To understand the operation of relays, characteristics, and applications.

LIST OF EXPERIMENTS:

- 1 Computation and modelling of transmission Lines.
- 2 Formation of Bus Admittance and Impedance Matrices.
- 3 Power Flow Analysis Using Gauss-Seidel Method.
- 4 Power Flow Analysis Using Newton Raphson Method.
- 5 Symmetric and Unsymmetrical Fault Analysis.
- 6 Transient Stability Analysis of SMIB System.
- 7 Load – Frequency Dynamics of Single- Area and Two-Area Power Systems.
- 8 Economic Dispatch in Power Systems.
- 9 State estimation: Weighted least square estimation.
- 10 Performance analysis of over current relay.
- 11 Performance analysis of impedance relay.
- 12 Testing of CT, PT, and Insulator string.
- 13 Relay Coordination in Radial Feeder Protection Scheme.

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

On the successful completion of the laboratory, students will be able to:

- CO1: Model and analyze the performance of the transmission lines.
CO2: Perform power flow, short circuit, and stability analysis for any power system network.
CO3: Understand, design, and analyze the load frequency control mechanism.
CO4: Perform optimal scheduling of generators and compute the state of the power system.
CO5: Understand, analyze, and apply the relays for power system protection.