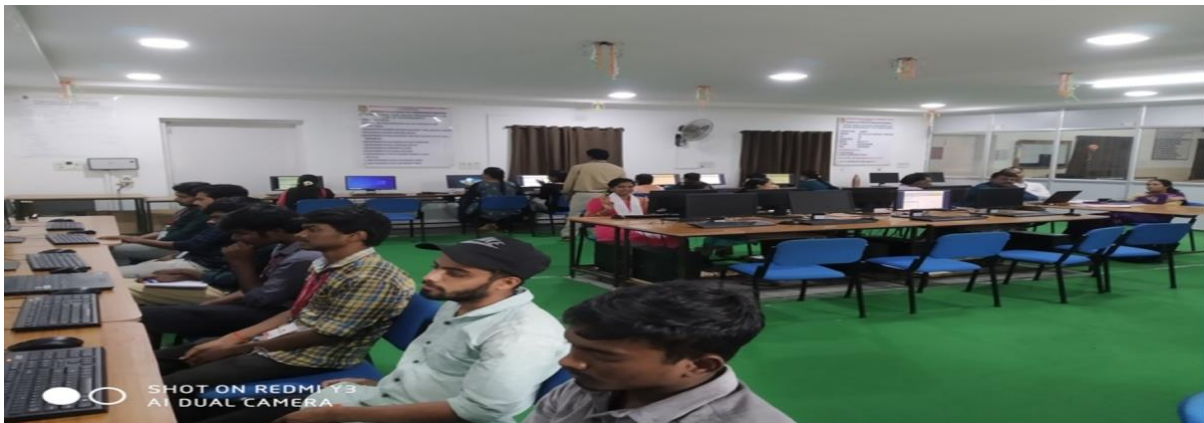


Power Systems and Simulation lab:

The Power System and Simulation Lab is a crucial component of the electrical engineering curriculum, providing students with hands-on experience in fault analysis and power system analysis techniques. Through a range of experiments, students gain practical knowledge and insights into the behaviour of power systems under different fault conditions and operating scenarios. They explore fault analysis experiments on a three-phase alternator, investigating faults such as LG fault, LL fault, LLG fault, and LLLG fault. By analysing the responses of the alternator to these faults, students develop a deeper understanding of fault detection, protection schemes, and the importance of fault analysis for maintaining the stability and reliability of power systems.

In addition to fault analysis, the Power System and Simulation Lab also focus on protection relays and power system analysis methods. Students conduct experiments on single-phase earth fault relays and single-phase overcurrent relays, studying their characteristics and operation in detecting and isolating faulty sections of the power system. Furthermore, students engage in power system analysis experiments such as Y-BUS formation and Newton-Raphson load flow analysis. These experiments allow students to construct the Y-BUS matrix based on power system line data, analyze the steady-state behaviour of the power system, and gain practical insights into load flow analysis techniques using the Newton-Raphson method.

By actively participating in the Power System and Simulation Lab, students enhance their problem-solving abilities, critical thinking skills, and proficiency in utilizing simulation tools and software for power system analysis. They gain practical experience in assessing power system behaviour, understanding fault detection and protection schemes, and applying analysis techniques to ensure the reliable operation of power systems. Overall, the lab equips students with the necessary knowledge and skills to address real-world challenges in power system engineering and make valuable contributions to the power industry.



Power Systems and Simulation Lab