Electrical Machinery Laboratory

The Electrical Machinery Laboratory is a comprehensive teaching package covering transformers, dc and ac machines. With purpose-built, bench-standing industrial machines, students use computer-aided data acquisition instrumentation to perform a complete set of experiments that enables them to study the characteristics of each machine under different operating conditions.

The lab features the powerful Cassy Lab interface for measuring, displaying and recording DC and AC quantities in real time. Further quantities can be extracted online or off line for plotting and analyzing the results. Students work in sub-groups of two or three on fully-equipped benches each comprising fixed and variable power supplies, panel-mounted interfaces, loads, control equipment and instrumentation. The experiments are designed to provide students with essential knowledge and practical skills on electrical machines and data-acquisition software that will make them better prepared for future engineering jobs.

Experiments

- Introduction to Cassy Lab
- Electric power measurements in single- and three-phase circuits
- Single-phase transformers: equivalent circuit, regulation and efficiency
- Three-phase transformers: winding connections
- Direct current generator characteristics
- Direct current motor characteristics
- Speed regulation of DC motors
- Characteristics of synchronous machines
- Three-phase induction motor characteristics
- Equivalent circuit of three-phase induction motors

Major Equipment

- Resistive Load
- Machine Test System
- Multifunctional Measuring Instrument
- Manual Synchronization Unit
- Isolation Amplifier
- Sensor Cassy 2
- Profi Cassy
- Dc Multifunction Machine
- Multifunction Machine
- Squirrel Cage Motor
- Transformer