ELECTRICAL MACHINES LABORATORY

Laboratory Information

Lab Name: Electrical Machines Laboratory
Room No.: 201 - Colleges of Engineering and Technology
Capacity: 20 students
The electric machines laboratory provides the opportunity to understand and examine the behavior of converting electrical energy to mechanical energy and vice versa and understand the classical electrical machines to drive several mechanical loads as well as synchronizing generators to be connected on a single local network. Also, it includes modules of power electronic devices and scopes suitable to build power electronic circuits and demonstrate device control and performance. Furthermore, basic converter and inverter drive sets are available to be applied with different machine types.

The laboratory serves in performing the following project activities:

- Unity power factor lost converter for D.C. motor.
- D.C. step down chopper for D.C. motor.
- Four-quadrant drive for D.C. motor.
- Three-phase chopper control induction motor.
- Voltage control of wind driven induction generator.
- Series Motor Drive.
- Three Phase Wind Induction Generator Station.
- Inverter Bridge leg.

- **Major Equipment**

D.C. machine with measurement unit
DC compound motor
3Φ Slip ring induction motor
3Φ Induction motor squirrel cage induction motor
1Φ Induction motor capacitor start
3Φ Synchronous machine
Transformer
Power pack
DC power supply
Synchronizing device
Synchronizing unit
Power electronics components and panels
3Φ Passive loads (Capacitive Loads, Inductive Loads and Resistive Loads)
3Φ Load switch
Wye/Delta Switch
Shunt regulator
Revolution counter
Tachometer generator
Power factor meter
Multi-meter
Wattmeter

Laboratory Serves the following courses:

Course Code	Course Title	Semester
EE 238	Electrical Eng. Fundamentals	3rd
EE 218	Instrumentation and Measurements	4th
EE 329	Electrical Machines	5th

Figure 1.6 Electrical Machines Laboratory