GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

DC MACHINES LAB

Course Code: GR15A2037 L:0 T:0 P:2 C:2
II Year I Semester

Prerequisites: In –depth knowledge of D.C. Machines.

Objectives
- To provide students with a strong back ground in different types of electrical machines.
- To train the students to have the solid foundation in mathematical and technical concepts required to engineering problems.
- To prepare the students to excel in post graduate programs or to succeed in industry.
- To provide a foundation in the theory and applications of electrical machinery and their different types with respect to their design.

Outcomes
- Have knowledge of various parts of a electrical machine.
- Develop knowledge helpful for PhD.
- Ability to conduct speed control of different types of DC Motors.
- Ability to conduct characteristics of DC Servo Motor
- Ability to simulate laboratory experiments in the software.
- Ability to Perform test on Motor-Generator Set.
- Ability to find different losses in the Machines.

Contents
1. Speed Control of a D.C Shunt Motor
2. Brake Test on a DC Shunt Motor
3. Brake Test on a DC Compound Motor
4. Open Circuit Characteristics of a DC Shunt Generator
5. Load test on a D.C. Shunt Generator.
6. Load test on a D.C. Series Generator
7. Load test on D.C. Compound Generator
8. Hopkinson Test
9. Fields Test
10. Retardation Test on D.C. Shunt Motor
11. Swinburne's Test
12. Separation of Core Losses

Students Activity

Design of machine windings using AUTO- CAD software.

i) Lap winding for 12 slots 4-pole single layer progressive winding.
ii) Lap winding for 12 slots 4-pole single layer retrogressive winding.
iii) Double layer winding for 24 slots 4-pole progressive lap wound machine.
Iv) Double layer winding for 30 slots 4-pole progressive lap wound machine.