

2/4 B.Tech. SECOND SEMESTER

EE4L2

ELECTRICAL MACHINES LAB – I

Credits: 2

Lecture: 3 periods/week

Internal assessment: 25 marks

Tutorial: 0period /week

Semester end examination: 50 marks

Objective: The ability to conduct testing and experimental procedures on different types of electrical machine

The capability to analyze the operation of electric machines under different loading Conditions

Outcome: Able to obtain experimentally the load characteristics of various dc motors and generators.

Any 10 of the following experiments are required to be conducted:

1. Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.
2. Load test on DC shunt generator. Determination of characteristics.
3. Load test on DC series generator. Determination of characteristics.
4. Load test on DC compound generator. Determination of characteristics.
5. Brake test on DC shunt motor. Determination of performance curves.
6. Brake test on DC compound motor. Determination of performance curves.
7. Brake test of DC series motor. Determination of performance curves.
8. Swinburne's test and predetermination of efficiencies as Generator and Motor.
9. Speed control of DC shunt motor by field and armature control.
10. Hopkinson's test on DC shunt machines. Predetermination of efficiency.
11. Fields test on DC series machines. Determination of efficiency.
12. Retardation test on DC shunt motor. Determination of losses at rated speed.
13. Separation of losses in DC shunt motor.