Subject Code	:	PCEE-514
Title of the course	:	Electrical Machines Lab-1

L	Т	Р	Credits	Weekly Load
0	0	2	1	2

Course Outcomes:

After successful completion of course, the students should be able to

- CO 1: understand construction and working principle of single phase and auto transformers.
- **CO 2:** acquire the knowledge of three phase transformers, different type of winding connection, parallel operation and testing of transformers.
- CO 3: explain construction and working principle of DC generator and various method of improving commutation.
- **CO 4:** describe the construction, working principle and characteristics of DC motor.
- **CO 5:** learn various method of starting and braking of DC motor.

CO/PO Mapping: (Strong(3) / Medium(2) / Weak(1) indicates strength of correlation):														
COs	Program Outcomes (POs)/Program Special Outcome (PSO's)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	2	2	1	2	1	2	1	2	2	1
CO2	2	1	2	3	2	2	1	2	1	2	2	2	2	1
CO3	3	1	2	3	2	2	2	1	1	2	2	2	1	1
CO4	3	2	2	3	2	2	1	1	1	2	2	1	1	1
CO5	3	2	2	3	2	2	1	1	1	2	2	1	2	2

To understand the practicability of **Electrical Machine-I**, the list of experiments is given below to be performed (at least 10) in the laboratory.

- 1. To perform Open circuit and short circuit tests on a single phase transformer and hence find equivalent circuit, voltage regulation and efficiency.
- 2. To perform Load test on a single phase transformer.
- 3. To separate core losses of single phase transformer at no-load.
- 4. To perform parallel operation of two single phase transformers.
- 5. To study the various connections of three phase transformer.
- 6. To perform Scott connections on three phase transformer to get two phase supply.
- 7. To study the constructional details of direct current (DC) machine.
- 8. To measure armature and field resistance of direct current (DC) machine.
- 9. To draw the open circuit characteristics (OCC) of DC shunt generator.
- 10. To draw the Load characteristic of DC shunt generator.
- 11. To perform speed control of a DC motor using field control and armature control method.
- 12. To perform Swinburne's test (no load test) to determine losses of direct current (DC) shunt motor.
- 13. To perform Hopkinson Test on DC machine.