

Subject Code : **PCEE-525**
Title of the course : **Electrical Machines – II Laboratory**

L	T	P	Credits	Weekly Load
0	0	2	1	2

Course Outcomes:

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

CO 1: interpret the basics of Induction machine, rotating field, torque etc.

CO 2: know the construction, operation and characteristics of poly-phase induction machine.

CO 3: simulate the steady-state and transient state performance of synchronous machines to identify performance measures.

CO 4: analyse the operation, use and characteristics of induction generator.

CO 5: select the appropriate AC motor for different large power application

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	PSO 1	PSO 2
CO1	3	3	3	2	2	2	1	2	1	2	2	2	3	2
CO2	3	3	3	2	3	2	1	2	1	2	2	2	2	1
CO3	3	3	2	3	3	3	2	2	1	3	3	2	2	1
CO4	3	3	2	2	2	S	2	1	2	3	3	1	3	3
CO5	3	3	3	2	2	2	1	2	1	2	2	2	3	2

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

1. To perform no-load and blocked-rotor tests on three-phase Induction motor to obtain equivalent circuit. Parameters and to draw circle diagram.
2. To perform load-test on three-phase Induction motor and to plot torque versus speed characteristics.
3. To study star- delta starters physically and a) to draw electrical connection diagram b) to start the three-phase Induction motor using it. c) to reverse the direction of three-phase Induction motor.
4. To start a three-phase slip –ring induction motor by inserting different levels of resistance in the rotor circuit and to plot torque –speed characteristics.
5. To perform no-load and blocked-rotor test on single-phase Induction motor and to determine the parameters of equivalent circuit.
6. To perform load –test on single-phase. Induction motor and plot torque –speed characteristics.
7. To perform no load test on the alternator and draw open circuit characteristics (OCC).
8. To perform short circuit test on the alternator and draw short circuit characteristics (SCC).
9. To perform load test on the alternator and draw terminal voltage characteristics
10. To find voltage regulation of an alternator by zero power factor (ZPF.) method.
11. To draw "V" and inverted "V" curves of synchronous motor.
12. To measure negative sequence and zero sequence reactance of Synchronous Machines.
13. Parallel operation of three phase alternators using • Dark lamp method • Two-Bright and one dark lamp method.