Electrical Machines-I Lab

Course Code	19EE3451	Year	II	Semester	II
Course Category	Professional Core	Branch	EEE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisite	Basic Electrical and Electronics Engineering Lab (19ES1151)
Continuous Internal Evaluation:	25	Semester End Evaluation:	50	Total Marks:	75

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	**Analyze** the magnetization characteristics and performance of D.C generators. (L4)
CO2	**Classify** the characteristics of DC motor and determine efficiency of D.C machine. (L3)
CO3	**Classify** the characteristics and testing methods of single-phase transformers. (L3)
CO4	**Analyze** the performance of three phase transformers. (L4)

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: High, 2: Medium, 1: Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2				2		1			1	2	2	2
CO2	2	2				2		1			1	2	2	2
CO3	2	2				2		1			1	2	2	2
CO4	2	2				2		1			1	2	2	2

Syllabus		
Unit No.	**Contents**	**Mapped CO**
	PART-A Compulsory	
1.	Magnetization and load characteristics of DC shunt generator	CO1
2.	Speed control of DC shunt motor by field and armature control	CO2
3.	Hopkinson‘s test on D.C shunt machines.	CO1,CO2
4.	Field’s test on D.C series machines.	CO1,CO2
5.	Determination of equivalent circuit parameters and voltage regulation using OC and SC tests on single phase transformer	CO3
6.	Parallel operation of two single phase transformers.	CO3
7.	Scott connection of transformers.	CO4
8.	Separation of losses in single phase transformer	CO3
	PART-B: Any Two Experiments	
9.	Load test on DC series generator.	CO1
10.	Load test on DC compound generator.	CO1
11.	Brake test on DC Compound motor	CO2
12.	Separation of losses in DC shunt machine	CO1, CO2

13.	Load test on single phase transformer.	CO3
14.	Sumpner's test on single phase transformers.	CO3

Learning Resources

Text Books

1. Dr.P. S Bimbhra-Electrical Machinery-7/e -Khanna Publishers,2018.
2. I.J. Nagarath and D.P. Kothari, ―Electric Machines, 4/e, McGraw Hill,2010.
3. A.E. Fitzgerald, Charles Kingsley Jr. Stephen D. Umans, ‒Electric Machinery 7/e, McGraw,Hill.,2013