

INDUCTION AND SYNCHRONOUS MACHINES LAB

Course Code	23EE3451	Year	II	Semester(s)	II
Course Category	Professional Core	Branch	EEE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisite	EEW and EM-I Lab
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Determine the performance of three phase induction machine (L3)
CO2	Determine the performance of single phase induction machine (L3)
CO3	Analyze the performance and predetermine the regulation of the alternator. (L4)
CO4	Obtain the characteristics and parameters of synchronous machine (L3)
CO5	Conduct experiments as a team / individual by using equipment available in the laboratory
CO6	Summarize, tabulate and make an effective report on the conducted experiments.

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	3			3				3				3	3	1
CO2	3			3				3				3	3	1
CO3		3		3				3				3	3	1
CO4	3			3				3				3	3	1
CO5					3				3				3	1
CO6										3			3	1

Any 10 of the following experiments are to be conducted:

Syllabus		
Exp. No.	Contents	Mapped CO
1	Brake test on three phase Induction Motor.	CO1 CO5 CO6
2	Circle diagram of three phase induction motor.	
3	Speed control of three phase induction motor by V/f method.	
4	Equivalent circuit of single-phase induction motor.	CO2 CO5 CO6
5	Power factor improvement of single-phase induction motor by using capacitors.	
6	Load test on single phase induction motor.	
7	Regulation of a three -phase alternator by synchronous impedance &MMF methods.	CO3 CO5 CO6
8	Regulation of three-phase alternator by Potier triangle method.	
9	V and Inverted V curves of a three-phase synchronous motor.	CO4 CO5 CO6
10	Determination of X_d , X_q & Regulation of a salient pole synchronous generator.	
11	Determination of efficiency of three phase alternator by loading with three phase induction motor.	
12	Parallel operation of three-phase alternator under no-load and load conditions.	

Learning Resources
Text Books
<ol style="list-style-type: none">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.