

Faculty of Electrical Engineering
B.E. Electrical and Electronics Engineering
(R 2021) Semester – III

Faculty of Electrical Engineering
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MAJOR EQUIPMENT

Course Code: EE3411 Course Title: ELECTRICAL MACHINES LABORATORY – II SUBJECT INCHARGE: T.Kannan		
Sl. No.	Description of Equipment	Required numbers (for batch of 30 students)
1.	DC Shunt Motor Coupled With Three phase Salient Pole Alternator	1
2.	DC Shunt Motor Coupled With Three phase non-salient pole Alternator	3
3.	DC Shunt Motor Coupled With Three phase Slip ring Induction motor	1
4.	Three Phase Induction Motor with Loading Arrangement	2
5.	Single Phase Induction Motor with Loading Arrangement	2

MINOR EQUIPMENT

Course Code: EE3411 Course Title: ELECTRICAL MACHINES LABORATORY – II		
Sl. No.	Description of Equipment	Required numbers (for batch of 30 students)
1.	Tachometer -Digital/Analog	8
2	Single Phase Auto Transformer	2
3	Three Phase Auto Transformer	3
4	Single Phase Resistive Loading Bank	2
5	Three Phase Resistive Loading Bank	2
6	Capacitor Bank	1
7	Three phase inductive load	1
8	Rheostats	As per the requirement for the machines



SAFETY MEASURES

- **General Rules of Conduct in Laboratories are displayed.**
 - **Specific Safety Rules for students are displayed.**
 - **Fire Extinguisher and First aid kit are regularly inspected and restocked as necessary.**
 - **All electrical wires are protected by using MCB.**
 - **Well trained technical supporting staff.**
 - **Periodical servicing of the lab equipments.**
 - **Maintaining a clean and organized laboratory.**
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COURSE OBJECTIVES:

- To expose the students to the operation of synchronous machines and induction motors and give them experimental skill.

LIST OF EXPERIMENTS

- Regulation of three phase alternator by EMF and MMF methods.
- Regulation of three phase alternator by ZPF and ASA methods.
- Regulation of three phase salient pole alternator by slip test.
- Measurements of negative sequence and zero sequence impedance of alternators.
- V and Inverted V curves of Three Phase Synchronous Motor.
- Load test on three-phase induction motor.
- No load and blocked rotor tests on three-phase induction motor (Determination of equivalent circuit parameters).
- Separation of No-load losses of three-phase induction motor.
- Load test on single-phase induction motor.
- No load and blocked rotor test on single-phase induction motor.
- Study of Induction Motor Starters

TOTAL: 45 PERIODS**COURSE OUTCOMES:**

At the end of the course, the student should have the:

- CO1: Ability to understand and analyze EMF and MMF methods
 CO2: Ability to analyze the characteristics of V and Inverted V curves
 CO3: Acquire hands on experience of conducting various tests on alternators and obtaining their performance indices using standard analytical as well as graphical methods. to understand the importance of Synchronous machines
 CO4: Acquire hands on experience of conducting various tests on induction motors and obtaining their performance indices using standard analytical as well as graphical methods. to understand the importance of single and three phase Induction motors
 CO5: Ability to acquire knowledge on separation of losses

MAPPING OF COs WITH POs AND PSOs

COs	POs												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	3	3	1	1	-	-	-	1.5	1	-	-	3	3	3	2
CO2	3	3	1	1	-	-	-	1.5	1	-	-	3	3	3	2
CO3	3	3	1	1	-	-	-	1.5	1	-	-	3	3	3	1
CO4	3	3	1	1	-	-	-	1.5	1	-	-	3	3	3	1
CO5	3	3	1	1	-	-	-	1.5	1	-	-	2	3	3	2
Avg	3	3	1	1	-	-	-	1.5	1	-	-	2.8	3	3	1.6