



Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India

Affiliated to Tripura University (A Central University),

Department of Electrical Engineering



List of Laboratory Experiments

Electrical Machines Laboratory-I							
Course Code	Hours / Week				Maximum Marks		
PC EE 407	L	T	P	C	CIA	SEE	Total
	0	0	2	1	40	60	100
Number of classes: 24 hours				Prerequisites: Electrical Machines-I			
Branch: EE				Semester: IV			
Course overview: <p>The Electrical Machines Lab-I is designed to provide hands-on experience in understanding the fundamental operating principles and performance characteristics of DC machines and single-phase transformers. Through a series of structured experiments, students gain practical knowledge of testing methods, control techniques, and performance evaluation of electrical machines.</p> <p>This course covers essential experiments such as open-circuit and short-circuit tests on transformers, parallel operation of transformers, and performance characteristics of various types of DC machines including shunt, series, and compound motors and generators. Students will also explore methods for speed control of DC motors and study the operation and features of auto-transformers.</p> <p>The laboratory emphasizes experimental validation of theoretical concepts, development of measurement skills, and critical analysis of machine behavior under different loading conditions, thus laying a strong foundation for advanced studies in electrical machines.</p>							
Course objectives: <ol style="list-style-type: none">To perform standard tests on single-phase transformers such as open-circuit, short-circuit, and parallel operation, and analyze their performance.To understand the working and starting methods of DC machines, including the use of starters for DC motors.To study speed control techniques of DC shunt motors using armature and field control methods.To evaluate the load and no-load characteristics of DC motors and generators, including shunt, series, and compound types.							
Course outcomes:							
CO Number	CO Description						K-level
CO-1	Understand the basic concept of Transformers.						K-2
CO-2	Understand the basic knowledge of DC Machines.						K-2



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CO-3	Apply the knowledge of transformer for Industrial Applications	K-3
CO-4	Apply the knowledge of DC machines for Industrial Applications.	K-3
Sl. No.	EXPERIMENT NAME	CO
1.	O.C and S.C test on single phase transformer	CO1
2.	Parallel operation of two single phase transformers	CO1
3.	Study of dc machine starter and variation of speed of dc shunt motor by armature and field control method.	CO2
4.	No load characteristics of dc shunt generator	CO2
5.	Load characteristics of dc series motor	CO3
6.	Load characteristics of dc compound generator	CO4
7.	Load test on dc shunt motor	CO4
8.	To study the characteristics of Auto-Transformer	CO3