

COURSE CODE: 1151EE303	COURSE TITLE: DC MACHINES & TRANSFORMERS LAB	L	T	P	C
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COURSE CATEGORY:

Program Core

PREAMBLE :

The course provides an introduction to DC machines (Generators & Motors), transformers and their load and open circuit characteristics with its variable speed tests and losses in transformers

PREREQUISITE COURSES:

Basic Electrical & Electronics Engineering Lab

RELATED COURSES:

Solid State Drives AC Machines, Control System, and Special Electrical Machines

COURSE EDUCATIONAL OBJECTIVES :

The objectives of the course are to make the students,

- To expose the student for the operation of DC machines and transformers and give them experimental skills

COURSE OUTCOMES :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Determine the Characteristic of DC motor and generator on No load and Load condition	S2
CO2	Estimate various losses in DC machines and transformers	S2
CO3	Differentiate between various control methods for DC motors and transformers	S2
CO4	Identify and compute safe operating limits for machines	S3
CO5	Demonstrate a good knowledge in operation of electric machines	S3

COURSE CONTENT:**LIST OF EXPERIMENTS**

1. Open circuit and load characteristics of D.C separately excited shunt generator
2. Open circuit and load characteristics of D.C self-excited shunt generator
3. Load characteristics of D.C. compound generator with differential and cumulative connection
4. Load characteristics of DC compound motor
5. Load characteristics of D.C shunt motor
6. Load characteristics of D.C series motor
7. Swinburne's test in DC machine
8. Speed control of D.C shunt motor
9. Open circuit and short circuit tests on single and three phase transformer
10. Load test on single and three phase transformer
11. Separation of no-load losses in single phase transformer

TEXT BOOKS:

1. D.P.Kothari and I.J.Nagrath, 'Electric Machines', Tata McGraw Hill Publishing company Ltd, 2002.
2. Dr.P.S.Bimbhra,'Electrical Machinery', Khanna Publishers, 2003.

REFERENCE BOOKS:

1. A.E.Fitzgerald, Charles Kingsley, Stephen.D.Umans, 'Electric Machinery', and Tata McGraw Hill Publishing company Ltd, 2003.
2. J.B.Gupta, 'Theory and performance of Electrical Machines', S.K.Kataria and sons, 2002.

