

DISCIPLINE:- ELECTRICAL ENGINEERING	SEMESTER:- 3 rd	NAME OF THE TEACHING FACULTY: RUPAK KUMAR SAHOO
SUBJECT- DC MACHINES AND TRANSFORMERS (EEPC207 TH:4)	NO. OF DAYS/PER WEEK CLASS ALLOTTED:- 3	SEMESTER FROM DATE:- 14-07-2025 TO DATE :- 15. - 11 -2025
Week	Class day	Theory
1 st	1 st	1.DC Generators 1.1 D.C. generator: construction, parts, materials and their functions
	2 nd	1.2 Principle of operation of DC generator
	3 rd	1.2.1 Fleming's right hand rule
2 ND	1 st	1.2.2 Derive the emf equation of DC Generator
	2 nd	1.2.3 Schematic diagrams of different types of DC generator
	3 rd	1.2.4 Armature reaction
3 rd	1 st	1.2.4 Armature reaction
	2 nd	1.2.5 Commutation
	3 rd	1.2.6 Applications of D.C. generators
4 th	1 st	2.D.C. Motors 2.1 D.C. motor: Types of DC motors
	2 nd	2.1.1 Fleming's left hand rule
	3 rd	2.1.2 Principle of operation of Back e.m.f. and its significance
5 th	1 st	2.1.3 Voltage equation of DC motor
	2 nd	2.1.4 Torque and Speed; Armature torque, Shaft torque, BHP, Brake test, losses, efficiency
	3 rd	2.2 DC motor starters: Necessity, two point and three point starters
6 th	1 st	2.3 Speed control of DC shunt and series motor: Flux and Armature control
	2 nd	2.3 Speed control of DC shunt and series motor: Flux and Armature control
	3 rd	2.4 Brushless DC Motor: Construction and working
7 th	1 st	3.Single Phase Transformers 3.1 Types of transformers: Shell type and core type
	2 nd	3.2 Construction: Parts and functions
	3 rd	3.3 Materials used for different parts: CRGO, CRNGO, HRGO, amorphous cores
8 th	1 st	3.4 Transformer: Principle of operation
	2 nd	3.5 EMF equation of transformer: Derivation, Voltage transformation ratio
	3 rd	3.6 Significance of transformer ratings
9 th	1 st	3.7 Transformer No-load and on-load phasor diagram, Leakage reactance
	2 nd	3.8 Equivalent circuit of transformer: Equivalent resistance and reactance
	3 rd	3.9 Voltage regulation and Efficiency: Direct loading, OC/SC method, All day efficiency
10 th	1 st	3.9 Voltage regulation and Efficiency: Direct loading, OC/SC method, All day efficiency
	2 nd	4.Three Phase Transformers

11 th		4.1 Bank of three single phase transformers, (Y-Y, Δ - Δ , Δ -Y, Y- Δ)
	3 rd	4.2 Single unit of three phase transformer
	1 st	4.3 Distribution and Power transformers: Construction and cooling,
12 th	2 nd	4.3 Distribution and Power transformers: Construction and cooling,
	3 rd	4.4 Criteria for selection of distribution transformer, and power transformer
	1 st	4.5 Need of parallel operation of three phase transformer
13 th	2 nd	4.6 Conditions for parallel operation.
	3 rd	4.7 Polarity tests on mutually inductive coils
	1 st	4.7 Polarity tests on single phase transformers
14 th	2 nd	4.8 Polarity test, Phasing out test on Three-phase transformer
	3 rd	5. Special Purpose Transformers
	1 st	5.1 Single phase autotransformers: Construction, working and applications.
15 th	2 nd	5.1 Single phase autotransformers: Construction, working and applications.
	3 rd	5.1 Three phase autotransformers: Construction, working and Application.
	1 st	5.1 Three phase autotransformers: Construction, working and applications.
15 th	2 nd	5.2 Isolation transformer: Constructional Features and applications
	3 rd	5.2 Isolation transformer: Constructional Features and applications

TPSoh
10/7/25

Signature of faculty

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Signature of sr lecturer
Head of Dept. (HOD)
Electrical & ETC F
G. I. E. T. (P. O. LY),

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Signature of principal