

<b>DISCIPLINE:</b> Electrical & Electronics Engg.	<b>SEMESTER:</b> 4 <sup>th</sup> Semester	<b>NAME OF THE TEACHING FACULTY:</b> Mr.Bibhuti Gampai PTGF IN EEE
<b>SUBJECT:</b> ELECTRICAL MACHINES (TH-01)	<b>NO OF DAYS/PER WEEK CLASSES ALLOTTED:</b> 3	<b>SEMESTER FROM DATE: 22.12.2025 TO DATE: 18.04.2026</b> <b>NO OF WEEKS:</b> 15

Week	Class Day	Topics
		<b>1. Open loop-and closed loop control systems</b>
1 <sup>st</sup>	1st	Definition of motor and generator
	2nd	Torque development due to alignment of two fields and the concept of torque angle
	3rd	Electro-magnetically induced emf
2 <sup>nd</sup>	1 <sup>ST</sup>	Elementary concept of an electrical machine
	2 <sup>ND</sup>	Comparison of generator and motor; Generalized theory of electrical machines.
	3 <sup>RD</sup>	ASSIGNMENT
3 <sup>rd</sup>		<b>2. D.C. Machine</b>
	1st	Construction & working principle of D. C. Generator, EMF equation.
	2nd	Excitation system, types of D.C. Generator, terminal voltage.
4 <sup>th</sup>	3rd	Losses & efficiency, Specification of DC machine.
	1st	ASSIGNMENT
	2nd	D. C. Motor; Construction & working principle of D. C. Motor.
5 <sup>th</sup>	3rd	Type of motors & their uses;
	1st	Explanation of D.C. Motor starters, necessity of starters, types of starters.
	2nd	Speed control of DC Motor by field flux control & armature voltage
6 <sup>th</sup>	3rd	ASSIGNMENT
	1 <sup>ST</sup>	Control of DC shunt motor;
	2 <sup>ND</sup>	Simple concept of BLDC motor.
7 <sup>th</sup>	3 <sup>RD</sup>	CLASS TEST
		<b>3. Synchronous Generator (Alternator)</b>
	1st	Construction, Working principle
8 <sup>th</sup>	2nd	Relation between speed & frequency, Pitch factor
	3rd	Distribution Factor, Emf equation of alternator
	1 <sup>ST</sup>	Simple Problems.
9 <sup>th</sup>	2 <sup>ND</sup>	ASSIGNMENT
	3 <sup>RD</sup>	Alternator on No Load & on load
	1st	Conception on efficiency
10 <sup>th</sup>	2nd	Voltage Regulation,
	3rd	CLASS NOTE REVISION
	1 <sup>ST</sup>	CLASS TEST
11 <sup>th</sup>		<b>4. A.C. Motors</b>
	2 <sup>ND</sup>	Induction Motor: construction, types of rotors
	3 <sup>RD</sup>	rotating magnetic field, principle of operation of three phase induction motor
11 <sup>th</sup>	1st	Synchronous speed, actual speed & slip, torque equation
	2nd	ASSIGNMENT
	3rd	Factors affecting the motor -torque, speed torque characteristics.

12 <sup>th</sup>	1 <sup>ST</sup>	Starting methods of induction motor by using DOL & Star-Delta starters
	2 <sup>ND</sup>	basic idea of soft starter.
	3 <sup>RD</sup>	CLASS NOTE REVISION
13 <sup>th</sup>	1st	Speed control of AC induction motor by variable frequency & variable voltage (V/F) control.
	2nd	CLASS TEST
	3rd	<b>5. Transformer</b> Construction & working principle of transformer; EMF equation of transformer, transformation ratio
14 <sup>th</sup>	1 <sup>ST</sup>	turn ratio, transformer rating, Simple problem.
	2 <sup>ND</sup>	Transformer on No Load & on Load; Open & short circuit test; Losses & efficiency of transformer
	3 <sup>RD</sup>	ASSIGNMENT
15 <sup>th</sup>	1st	voltage regulation; Principle, advantage & disadvantage of Single phase autotransformer
	2nd	Current & Potential transformer, their characteristics and applications; Specification of a transformer.
	3rd	CLASS TEST

G. Bibhuti  
22.12.25  
Lecturer

Sharma  
HOD 22.12.25

Sharma  
Principal  
22.12.25