



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT: Th-1(ELECTRIAL MACHINE)

Name Of The Faculty :- Er.Prakash kumar Mohanty

Branch :- Electrical & Electronics Engg.


Session :- 2024-25

Semester :- 4th

Examination :- 2025(S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Electrical material	4	4
2	DC generator	10	10
3	DC MOTOR	8	8
4	Ac circuit	8	8
5	Three phase supply	4	5
6	Transformer	8	8
7	Induction motor	10	11
8	Single phase induction motor	5	6
9	Alternator	3	4
10	Tutorial	15	16
	TOTAL	75	80


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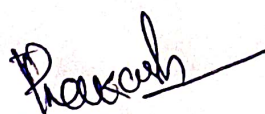

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Discipline: ELECTRICAL AND ELECTRONIC ENGINEERING	Semester: 4th	Name of the Teaching Faculty: Er.PRAKASH KUMAR MOHANTY
Week	Class Day	Theory / Practical Topics
1st	1st	ELECTRICAL MATERIAL Properties & uses of different conducting material
	2nd	Properties & use of various insulating materials used electrical engineering
	3rd	Properties & use of various insulating materials used electrical engineering
	4th	Types of Magnetic materials & their uses
	5th	Class Test
2nd	1st	DC GENERATOR: Basic working principle
	2nd	constructional feature of DC Generator
	3rd	constructional feature of DC Generator
	4th	Classification of DC generator with voltage equation
	5th	Class Test
3rd	1st	Classification of DC generator with voltage equation
	2nd	Derivation of EMF equation & simple problems
	3rd	Derivation of EMF equation & simple problems
	4th	Applications of DC generators
	5th	Class Test
4th	1st	Parallel operation of DC generators
	2nd	Parallel operation of DC generators
	3rd	DC MOTOR Working Principle of a DC motor
	4th	Concept of development of torque & back EMF in DC motor
	5th	Class Test
5th	1st	Concept of development of torque & back EMF in DC motor. (simple problems)
	2nd	Derive equation relating to back EMF, Current, Speed and Torque equation
	3rd	Classification of DC motors & their characteristics Application of DC MOTORS
	4th	State & explain three point & four point stator of DC motors
	5th	Class Test

Week	Class Day	Theory / Practical Topics
6th	1 st	Speed control of DC motor by field control and armature voltage control method
	2 nd	Explain power stages of DC motor & derive Efficiency of a DC motor.
	3 rd	AC CIRCUITS State Mathematical representation of phasors, significant of operator "j".
	4 th	Addition, Subtraction, Multiplication and Division of phasor quantities
	5 th	Class Test
7th	1 st	Explain AC series circuits containing resistance, capacitances, Concept of active, reactive and apparent power and Q-factor of series circuits. (Solve related problems)
	2 nd	Explain AC series circuits containing resistance, capacitances, Concept of active, reactive and apparent power and Q-factor of series circuits. (Solve related problems)
	3 rd	Explain AC series circuits containing resistance, capacitances, Concept of active, reactive and apparent power and Q-factor of series circuits. (Solve related problems)
	4 th	Explain AC series circuits containing resistance, capacitances, Concept of active, reactive and apparent power and Q-factor of series circuits. (Solve related problems)
	5 th	Class Test
8th	1 st	Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits
	2 nd	Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits
	3 rd	THREE PHASE SUPPLY : Star and Delta circuit
	4 th	Star and Delta circuit
	5 th	Class Test
9th	1 st	Line and Phase relationship
	2 nd	Power equation with numerical problems
	3 rd	Power equation with numerical problems
	4 th	TRANSFORMER State construction & working principle of transformer
	5 th	Class Test

Week	Class Day	Theory / Practical Topics
10th	1 st	Derive of EMF equation of transformer, voltage transformation ratio.
	2 nd	Discuss operation of transformer on no-load with phasor diagram
	3 rd	Operation of transformer on load condition in secondary with phasor diagram for different load.
	4 th	Operation of transformer on load condition in secondary with phasor diagram for different load.
	5 th	Class Test
11th	1 st	Types of losses in Single Phase (1-a) Transformer.
	2 nd	Open circuit & short-circuit test (simple problems).
	3 rd	Parallel operation of Transformer
	4 th	INDUCTION MOTOR: Constructional feature and types of three-phase induction motor.
	5 th	Class Test
12th	1 st	Principle of development of rotating magnetic field in the stator.
	2 nd	Working principle of three phase induction motor.
	3 rd	Working principle of three phase induction motor.
	4 th	Slip speed and slip of induction motor.
	5 th	Class Test
13th	1 st	Establish relation between torque, rotor current and power factor
	2 nd	Establish relation between torque, rotor current and power factor
	3 rd	Explain starting of an induction motor by using DOL and Star- Delta stator.
	4 th	Explain starting of an induction motor by using DOL and Star- Delta stator.
	5 th	Class Test

Week	Class Day	Theory / Practical Topics
14th	1 st	Explain starting of an induction motor by using DOL and Star- Delta stator.
	2 nd	Industrial use of induction motor
	3 rd	SINGLE PHASE INDUCTION MOTOR: Explain construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor.
	4 th	Explain construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor.
	5 th	Class Test
15th	1 st	Explain construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor.
	2 nd	Explain construction & operation of AC series motor.
	3 rd	Explain construction & operation of AC series motor.
	4 th	Explain construction & operation of AC series motor.
	5 th	Class Test
16th	1 st	ALTERNATOR Concept of alternator & its application.
	2 nd	Concept of alternator & its application.
	3 rd	Concept of alternator & its application.
	4 th	Concept of alternator & its application.
	5 th	Class Test


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