ACADEMIC LESSON PLAN OF SUMMER 2023

Discipline **Electronics &Tele communication Engg.**	Semester: - **4th**	**Name of the Teaching Faculty: Ananya Shubhadarsinee Lipipushpa Behera**
Subject: ELECTRICAL MACHINE	No. of days/per week class allotted : 4p/week	Semester From: 14th Feb 2023 to 23rd May 2023 No. of weeks:15 weeks
Week	Class Day	Theory Topics
1st	1st	**ELECTRICAL MATERIAL** 1.1 Properties & uses of different conducting material. (cont..)
	2nd	1.2 Properties & use of various insulating materials used electrical engineering.
	3rd	1.3 Various magnetic materials & their uses.
	4th	**DC GENERATOR** 2.1 Construction, Principle & application of DC Generator. (cont..)
2nd	1st	2.1 Construction, Principle & application of DC Generator. .
	2nd	2.2 Classify DC generator including voltage equation.
	3rd	2.3 Derive EMF equation & simple problems. (cont..)
	4th	2.3 Derive EMF equation & simple problems.
3rd	1st	2.4 Parallel operation of DC generators. (cont..)
	2nd	2.4 Parallel operation of DC generators.
	3rd	**DC MOTOR** 3.1 Principle of working of a DC motor. (cont..)
	4th	3.1 Principle of working of a DC motor.
4th	1st	3.2 Concept of development of torque & back EMF in DC motor including simple problems. (cont..)
	2nd	3.2 Concept of development of torque & back EMF in DC motor including simple problems.
	3rd	3.3 Derive equation relating to back EMF, Current, Speed and Torque equation
	4th	3.4 Classify DC motors & explain characteristics, application.
5th	1st	3.5 Three point & four point stator/static of DC motor by solid State converter. (cont..)
	2nd	3.5 Three point & four point stator/static of DC motor by solid State converter.
	3rd	3.6 Speed of DC motor by field control and armature control method. (cont..)
	4th	3.6 Speed of DC motor by field control and armature control method.
6th	1st	3.7 Power stages of DC motor & derive Efficiency of a DC motor. (cont..)

	2nd	3.7 Power stages of DC motor & derive Efficiency of a DC motor.
	3rd	**AC CIRCUITS** 4.1 Mathematical representation of phasors, significant of operator "J" (cont..)
	4th	4.1 Mathematical representation of phasors, significant of operator "J"
7th	1st	4.2 Addition, Subtraction, Multiplication and Division of phasor quantities. (cont..)
	2nd	4.2 Addition, Subtraction, Multiplication and Division of phasor quantities.
	3rd	4.3 AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems. (cont..)
	4th	4.3 AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems.
8th	1st	4.4 Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits. (cont..)
	2nd	4.4 Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits.
	3rd	**TRANSFORMER** 5.1 Ideal transformer. (cont..)
	4th	5.1 Ideal transformer.
9th	1st	5.2 Construction & working principle of transformer
	2nd	5.3 Derive of EMF equation of transformer, voltage transformation ratio.
	3rd	5.4 Discuss Flux, Current, EMF components of transformer and their phasor diagram under no load Condition.
	4th	5.5 Phasor representation of transformer flux, current EMF primary and secondary Voltages under loadedcondition.
10th	1st	5.6 Types of losses in Single Phase (1-ø) Transformer. (cont..)
	2nd	5.6 Types of losses in Single Phase (1-ø) Transformer.
	3rd	5.7 Open circuit & short-circuit test (simple problems) (cont..)
	4th	5.7 Open circuit & short-circuit test (simple problems)
11th	1st	5.8 Parallel operation of Transformer. (cont..)
	2nd	5.8 Parallel operation of Transformer.
	3rd	5.9 Auto Transformer (cont..)
	4th	5.9 Auto Transformer
12th	1st	INDUCTION MOTOR 6.1 Construction feature, types of three-phase induction motor. (cont..)
	2nd	6.1 Construction feature, types of three-phase induction motor.
	3rd	6.2 Principle of development of rotating magnetic field in the stator.
	4th	6.3 Establish relationship between synchronous speed, actual speed and slip of induction motor. (cont..)
13th	1st	6.3 Establish relationship between synchronous speed, actual speed and

		slip of induction motor.
	2nd	6.4 Establish relation between torque, rotor current and power factor. (cont..)
	3rd	6.4 Establish relation between torque, rotor current and power factor.
	4th	6.5 Explain starting of an induction motor by using DOL and Star-Delta stator. State industrial use of induction motor. (cont..)
14th	1st	6.5 Explain starting of an induction motor by using DOL and Star-Delta stator. State industrial use of induction motor.
	2nd	**SINGLE PHASE INDUCTION MOTOR** 7.1 Construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor. (cont..)
	3rd	7.1 Construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor. (cont..)
	4th	7.1 Construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor.
15th (Extra Classes)	1st	7.2 Explain construction & operation of AC series motor. (cont..)
	2nd	7.2 Explain construction & operation of AC series motor.
	3rd	7.3 Concept of alternator & its application. (cont..)
	4th	7.3 Concept of alternator & its application.

Signature of Teaching Faculty