DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY
ELECTRICAL	5TH	SRI SUSHANTA KUMAR MALIK, SR. LECTURER

SUBJECT:EM-II(TH-2)	NO. OF DAYS PER WEEK CLASS ALLOTED : 04	SEMESTER FROM 01/07/2024 TO 11/11/2024 - 16/12/24
		NO. OF WEEKS : 15 NOS.

WEEKS	CLASS DAYS	THEORY TOPICS
1ST	1ST	Production of rotating magnetic field
	2ND	Constructional feature of Squirrel cage and Slip ring induction motors
	3RD	Working principles of operation of 3-phase Induction motor
	4TH	Define slip speed, slip and establish the relation of slip with rotor quantities
2ND	1ST	Derive expression for torque during starting and running conditions
	2ND	Derive conditions for maximum torque. (solve numerical problems)
	3RD	Torque-slip characteristics.
	4TH	Derive relation between full load torque and starting torque etc(solve numerical problems)
3RD	1ST	Establish the relations between Rotor Copper loss, Rotor output and Gross Torque
	2ND	relationship of slip with rotor copper loss. (solve numerical problems)
	3RD	Methods of starting and different types of starters used for three phase Induction motor.
	4TH	Explain speed control by Voltage Control, Rotor resistance control
4TH	1ST	Pole changing, frequency control methods
	2ND	Plugging as applicable to three phase induction motor
	3RD	Describe different types of motor enclosures
	4TH	Explain principle of Induction Generator and state its applications
5TH	1ST	Explain Ferrari's principle
	2ND	Explain double revolving field theory and Cross-field theory of 1-phase induction motor
	3RD	Explain Working principle, Torque speed characteristics, performance characteristics
	4TH	Split phase motor, Capacitor Start motor
6TH	1ST	capacitor run motor, Permanent capacitor type motor, Shaded pole motor
	2ND	Explain the method to change the direction of rotation of above motors
	3RD	Types of alternator and their constructional features
	4TH	Basic working principle of alternator and the relation between speed and frequency.
7TH	1ST	Terminology in armature winding and winding factors (Pitch factor, Distribution factor)
	2ND	Explain harmonics, its causes and impact on winding factor
	3RD	E.M.F equation of alternator. (Solve numerical problems)
	4TH	Explain Armature reaction and its effect on emf at different power factor of load
8TH	1ST	The vector diagram of loaded alternator. (Solve numerical problems)
	2ND	Testing of alternator (Solve numerical problems)
	3RD	Open circuit test, Short circuit test
	4TH	Determination of voltage regulation of Alt direct loading and synchronous impedance method.
9TH	1ST	Parallel operation of alternator using synchro-scope and dark & bright lamp method.
	2ND	Explain distribution of load by parallel connected alternators
	3RD	(Solve numerical problems)
	4TH	Constructional feature of Synchronous Motor
10TH	1ST	Principles of operation, concept of load angle
	2ND	Derive torque, power developed
	3RD	Effect of varying load with constant excitation
	4TH	Effect of varying excitation with constant load
11TH	1ST	Power angle characteristics of cylindrical rotor motor
	2ND	Explain effect of excitation on Armature current and power factor

	3RD	Hunting in Synchronous Motor
	4TH	Function of Damper Bars in synchronous motor and generator
12TH	1ST	Describe method of starting of Synchronous motor, State application of synchronous motor
	2ND	Construction, working principle of single phase series motor
	3RD	running characteristic and application of single phase series motor
	4TH	Construction, working principle and application of Universal motors
13TH	1ST	Working principle of Repulsion start Motor
	2ND	Repulsion start Induction run motor
	3RD	Repulsion Induction motor
	4TH	Principle of Stepper motor
14TH	1ST	Classification of Stepper motor
	2ND	Principle of variable reluctant stepper motor ,Principle of Permanent magnet stepper motor
	3RD	, Principle of hybrid stepper motor, Applications of Stepper motor
	4TH	THREE PHASE TRANSFORMERS
15TH	1ST	Explain Grouping of winding, Advantages
	2ND	Explain parallel operation of the three phase transformers
	3RD	Explain tap changer (On/Off load tap changing)
	4TH	Maintenance Schedule of Power Transformers

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GAJAPATI