

KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN

Session (2022-2023)

Discipline: Electrical Engineering.	Semester: 5 th , Winter-2022	Name of the Teaching Faculty: Rakesh Roshan, Lecturer Email Id : rakesh.roshanfel@kp.kiit.ac.in
Subject: Energy Conversion -2 , Theory -2	No. Of Days/Week: 4	Start Date: 14/09/2022 End Date : 21/01/2023

Week	Class Day	Theory Topics
1st	1st	Types of alternator;
	2nd	Constructional details of non salient and salient pole rotor.
	3rd	Constructional details of stator
	4th	Armature winding
2nd	1st	short pitch winding, pitch factor, distribution factor
	2nd	E.M.F equation & Problem solving
	3rd	Armature reaction
	4th	Alternator on load. (Solve problems)
3rd	1st	Phasor diagram of loaded alternator.& problems
	2nd	Characteristic of Alternator; open circuit and short circuit tests
	3rd	Problem practice
	4th	Determination of regulation of Alternator by direct loading and Synchronous impedance method
4th	1st	Explain parallel operation and load division using synchro-scope & dark and bright lamp method
	2nd	REVIEW CLASS
	3rd	Construction.; principles of operation & Phasor diagram; torque, power developed
	4th	Quiz Test
5th	1st	Effect of varying load with constant excitation
	2nd	Effect of varying excitation with constant load
	3rd	Solving Problems;
	4th	Power angle characteristics of cylindrical rotor motor
6th	1st	Effect of excitation on Armature current and power factor

	2nd	Solving Problems and Assignment test
	3rd	Hunting & function of Damper Bars; application.
	4th	Production of rotating magnetic field.
7th	1st	Constructional feature-squirrel cage and slip rings induction motors.
	2nd	Derive relation between full load torque and starting torque etc.
	3rd	Condition for maximum torque under running condition
	4th	Torque during starting and running & problem
8th	1st	Rotor copper losses, rotor output and gross Torque
	2nd	Problem solving
	3rd	Torque-Speed and load current speed characteristics
	4th	Methods of starting, different types of starter.
9th	1st	Speed control by pole changing, Rotor Rheostat control, voltage control
	2nd	Motor enclosures; Induction Generator's and its applications
	3rd	REVIEW CLASS
	4th	CLASS TEST
10th	1st	Rotating – field theory of 1-phase induction motor.
	2nd	Ferraris principle, net torque
	3rd	Speed torque characteristics performance characteristics, applications of following
	4th	a. Split phase method of starting
11th	1st	b. Capacitor motor with principle
	2nd	c. Shaded pole motors with principle
	3rd	Explain the method to change the direction of rotation of above motors
	4th	REVIEW CLASS
12th	1st	Construction, working principle, running characteristic and application of single phase series motor
	2nd	Construction, working principle and application of Universal motors.
	3rd	Working principle of Repulsion start Motor,
	4th	Repulsion start Induction run motor
13th	1st	Repulsion Induction motor
	2nd	Review class
	3rd	Principle of Stepper motor
	4th	Classification of Stepper motor & Principle of variable

		reluctant stepper motor
14th	1st	Principle of Permanent magnet stepper motor
	2nd	Principle of hybrid stepper motor & Applications of Stepper motor
	3rd	Grouping of winding and advantages
	4th	Parallel operation of the three phase transformers;;
15th	1st	Tap changer (On/Off load tap changing)
	2nd	Maintenance of Transformers
	3rd	VERY SIMILAR TEST
	4th	VERY SIMILAR TEST