KIIT POLYTECHNIC

Department of Electrical Engineering

LESSON PLAN

Session :: Winter – 2022

Course Type :: Theory

Semester/Branch :: 5th Semester, Electrical Engineering

Subject (with code) :: Energy Conversion-II (Th-2)

Contact hours/week :: 4 hours

Name of Faculty :: RAKESH ROSHAN

SL. NO.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	**Alternator**: Types of alternator; Constructional details of non salient and salient pole rotor.	Demonstration	Study material
2	2	Constructional details of stator Armature winding &	Lecture	Study material
3	3	Short pitch winding, pitch factor, distribution factor & E.M.F equation	Video Content	https://www.youtube.com/watch?v=cyl9uLt4swo&list=PLbRMhDVUMngcDrGXlt-hX-ekpldUlC2b6&index=23
4	4	Problem solving & Armature reaction	Lecture	Study material
5	5	Alternator on load. (Solve problems) Phasor diagram of loaded alternator.& problems	Lecture	Text Book
6	6	Characteristic of Alternator; open circuit and short circuit tests	Lecture	Study material
7	7	Problem practice	Lecture	Text Book
8	8	Determination of regulation of Alternator by direct loading and Synchronous impedance method	Lecture	Study material
9	9	Explain parallel operation and load division using synchro-scope & dark and bright lamp method	Guest Lecture	To Be added
10	10	**PRACISE TEST 1**		Class notes
11	11	**Synchronous Motor** :Construction.; principles of operation	Video Content	https://www.youtube.com/watch?v=b24jORRoxEc
12	12	Phasor diagram; torque, power developed	Lecture	Study material
13	13	Effect of varying load with constant excitation & Effect of varying excitation with constant load	Lecture	Study material
14	14	Problems Solving	Lecture	Study material
15	15	Power angle characteristics of cylindrical rotor motor	Lecture	Study material

16	16	Effect of excitation on Armature current and power factor	Lecture	Text Book
17	17	Solving Problems and Assignment test	Lecture	Study material
18	18	Hunting & function of Damper Bars; application. & Numerical Problems	Lecture	Study material
19	19	**QUIZ TEST 1**		Text Book
20	20	**Induction motor**: Production of rotating magnetic field.	Self Video Content	https://www.youtube.com/watch?v=DANGZvHOgj0&list=PLbRMhDVUMngcDrGXlt-hX-ekpldUlC2b6&index=39
21	21	Constructional feature-squirrel cage and slip rings induction motors.	Demonstration	https://www.youtube.com/watch?v=c2r1rkUeQGI&t=17s
22	22	Derive relation between full load torque and starting torque etc.	Video Content	https://www.youtube.com/watch?v=YzY3ROOKdnY&list=PLbRMhDVUMngcDrGXlt-hX-ekpldUlC2b6&index=38
23	23	Condition for maximum torque under running condition	Lecture	Study material
24	24	Torque during starting and running & problem	Lecture	Study material
25	25	Rotor copper losses, rotor output and gross Torque	Lecture	Study material
26	26	Problem solving	Lecture	Text Book
27	27	Torque-Speed and load current speed characteristics	Lecture	Study material
28	28	Methods of starting, different types of starter.	Student Presentation	Text Book
29	29	Speed control by pole changing, Rotor Rheostat control, voltage control	Lecture	Study material
30	30	Motor enclosures; Induction Generator's and its applications	Student Presentation	Text Book
31	31	**Practice Test 2**		Previous year question paper
32	32	**Single phase induction motor**: Rotating – field theory of 1-phase induction motor.& Ferraris principle, net torque	Lecture	Study material
33	33	Speed torque characteristics performance characteristics, applications of following. a. Split phase method of starting	Demonstration	Study material/Lab Manual
34	34	b. Capacitor motor with principle & c. Shaded pole motors with principle	Lecture	Study material
35	35	Explain the method to change the direction of rotation of above motors	Lecture	Study material
36	36	**QUIZ TEST 2**		Text Book
37	37	**Commutator motors**: Construction, working principle, running characteristic and application of single phase series motor	Lecture	Study material
38	38	Construction, working principle and application of Universal motors.	Lecture	Study material

39	39	Working principle of Repulsion start Motor,	Lecture	Study material
40	40	Repulsion start Induction run motor & Repulsion Induction motor	Lecture	Study material
41	41	Review class	Recap/Summarizes	Class notes
42	42	**Special electrical machine**: Principle of Stepper motor	Lecture	Study material
43	43	Classification of Stepper motor & Principle of variable reluctant stepper motor	Video Content	https://www.youtube.com/watch?v=1IiY6Y1PHck
44	44	Principle of Permanent magnet stepper motor	Lecture	Study material
45	45	Principle of hybrid stepper motor & Applications of Stepper motor	Lecture	Study material
46	46	**Three phase transformer:** Grouping of winding and advantages	Video Content	https://www.youtube.com/watch?v=fAFPHbXBjmc
47	47	Parallel operation of the three phase transformers;;	Lecture	Study material
48	48	Tap changer (On/Off load tap changing) & Maintenance of Transformers	Field Visit	Text Book

Signature of Concern Teacher **Signature of H.O.D**