KIIT POLYTECHNIC

Department of Electrical Engineering

LESSON PLAN

Session :: Winter– 2022

Course Type :: Theory

Semester/Branch :: 5th Semester, Electrical Engineering

Subject (with code) :: Utilization of Electrical Energy & Traction. (Th4)

Contact hours/week :: 4 hours

Name of Faculty :: Khusboo Parvin

SL. NO.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	Definition and basic principle of electro-deposition	Lecture (Explanation)	Study material
2	2	Important terms regarding electrolysis	Lecture (Explanation)	Study material
3	3	Faradays laws of Electrolysis	Lecture (Explanation)	Study material
4	4	Definition of current efficiency, Energy efficiency	Lecture (Explanation)	Study material
5	5	Factor affecting the amount of Electro Deposition.	Lecture (Explanation)	Study material
6	6	Factors governing the electro deposition.	Lecture (Explanation)	Study material
7	7	State the simple example of extraction of metals and application of electrolysis	Lecture (Explanation)	Study material
8	8	**Recap and summarization**		Class notes
9	9	Advantage of electric heating	Lecture (Explanation)	Study material
10	10	Explain mode of heat transfer and Stephen's law	Lecture (Explanation)	Study material
11	11	Explain principle of direct and in-direct resistance heating.	Student presentation	https://www.youtube.com/watch?v=p3PkcLjNUhI

12	12	Explain principle of direct and in direct arc furnace.	Student presentation	https://www.youtube.com/watch?v=BWoZn-_Ahvk
13	13	**Question &Answer discussion**		Previous year question paper
14	14	Principle of induction heating	Lecture (Explanation)	Study material
15	15	Working principle of direct core type, vertical core type induction furnace	Lecture (Explanation)	Study material
16	16	Working principle of indirect core type induction furnace	Student presentation	https://www.youtube.com/watch?v=hjgSTq6vEBA
17	17	Principle of coreless induction furnace and skin effects.	Lecture (Explanation)	Study material
18	18	**Quiz Test**		
19	19	Principle of dielectric heating and its application.	Lecture (Explanation)	Study material
20	20	Explain principle of arc welding, Discuss AC and DC arc phenomenon	Student presentation	https://www.youtube.com/watch?v=mmKy5PbndQI
21	21	**Practice Test**		
22	22	DC and AC arc welding plants of singles and multi operation type	Lecture (Explanation)	Study material
23	23	Types of arc welding	Lecture (Explanation)	Study material
24	24	Explain the principle of resistance welding	Lecture (Explanation)	Study material
25	25	Study of different resistance welding method	Lecture (Explanation)	Study material
26	26	Nature of radiation and its spectrum	Prompt & clue	Study material
27	27	**Quiz Test**		
28	28	Definition of luminous intensity, lumen, MHCP, MSCP, MHSCP solid angle.	Lecture (Explanation)	Study material
29	29	Explain the inverse square law and the cosine law	Lecture (Explanation)	Study material

30	30	Explain polar law	Lecture (Explanation)	Study material
31	31	Describe light distribution and control	Lecture (Explanation)	Study material
32	32	Design of simple lighting schemes and depreciation	Prompt & clue	Study material
33	33	Working of filaments lamps, effects of variation of voltage	Student presentation	https://www.youtube.com/watch?v=_wy9FwMxxAM
34	34	Explain discharge lamp and gas discharge lamp	Lecture (Explanation)	Study material
35	35	Explain sodium vapor lamp, neon sign lamp	Lecture (Explanation)	Study material
36	36	High lumen output and low consumption FT	Lecture (Explanation)	Study material
37	37	Explain sodium vapor lamp, neon sign lamp	Lecture (Explanation)	Study material
38	38	Application of 3 phase induction motor and 3 phase synchronous motors	Prompt & clue	Study material
39	39	Explain system of traction and track electrification	Lecture (Explanation)	Study material
40	40	Running characteristics of AC traction motor.	Lecture (Explanation)	Study material
41	41	Running characteristics of DC traction motor	Lecture (Explanation)	Study material
42	42	Explain control of tapped field control and series parallel control	Lecture (Explanation)	Study material
43	43	Explain braking of regenerative braking	Lecture (Explanation)	Study material
44	44	**Practice Test**		
45	45	**Question &Answer discussion**		Previous year question paper
46	46	Explain braking with 1-phase series motor	Lecture (Explanation)	Study material
47	47	Explain braking of Magnetic braking	Lecture (Explanation)	Study material

48	48	Explain control of Meta-dyne control	Prompt & clue	Study material
49	49	**Review class**		Class notes
50	50	**Review class**		Class notes

Signature of Concern Teacher

REFERENCE:

1. Utilization of Electrical Energy by Traction by G.C Garg (Khanna publication)
2. A Text book on Power System Engg. by Soni Gupta Bhatnagar (Dhanpat Rai & Sons)