

BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA

LESSON PLAN

Session (2023-2024)

Discipline: Electrical ENGG.	Semester: 5 th , Winter/2023	Name of the Teaching Faculty Gopinath Chand Lecturer , Electrical Engineering
Subject: Utilization of Electrical Energy & Traction. Theory-4	No. of Days/Week: 04	Start Date: 01/08/2023 End Date: 30/11/2023

Week	Class Day	Theory Topics
1st	1st	Definition and basic principle of electro-deposition
	2nd	Important terms regarding electrolysis
	3rd	Faradays laws of Electrolysis
	4th	Definition of current efficiency, Energy efficiency
2nd	1st	Factor affecting the amount of Electro Deposition.
	2nd	Factors governing the electro deposition.
	3rd	State the simple example of extraction of metals and application of electrolysis
	4th	Advantage of electric heating
3rd	1st	<i>Doubt Clearing class</i>
	2nd	Explain mode of heat transfer and Stephen's law
	3rd	Explain principle of direct and in direct resistance heating.
	4th	Explain principle of direct and in direct arc furnace.
4th	1st	Principle of induction heating
	2nd	Working principle of direct core type, vertical core type and indirect core type induction furnace
	3rd	Principle of coreless induction furnace and skin effects.
	4th	<i>Doubt Clearing class</i>

5th	1st	<i>Assignment Evaluation & Class Test</i>
	2nd	<i>QUIZ Test-1</i>
	3rd	Principle of dielectric heating and its application.
	4th	Explain principle of arc welding
6th	1st	Discuss AC and DC arc phenomenon
	2nd	DC and AC arc welding plants of singles and multi operation type
	3rd	Types of arc welding
	4th	Explain the principle of resistance welding
7th	1st	Study of different resistance welding method
	2nd	Nature of radiation and its spectrum
	3rd	<i>Doubt Clearing class</i>
	4th	<i>Assignment Evaluation & Class Test</i>
8th	1st	Definition of luminous intensity, lumen, MHCP, MSCP, MHSCP solid angle.
	2nd	Explain the inverse square law and the cosine law
	3rd	Explain polar law
	4th	Describe light distribution and control
9th	1st	Design of simple lighting schemes and depreciation
	2nd	Working of filaments lamps, effects of variation of voltage
	3rd	Explain discharge lamp and gas discharge lamp
	4th	<i>Assignment Evaluation & Class Test</i>
10th	1st	Explain sodium vapor lamp, neon sign lamp
	2nd	High lumen output and low consumption FT
	3rd	<i>Doubt Clearing class</i>
	4th	State group and individual drive
11th	1st	Explain starting and running of characteristics of DC and AC motor,
	2nd	State application of DC motor
	3rd	Application of 3 phase induction motor and 3 phase synchronous motors
	4th	Explain system of traction and track electrification
12th	1st	Running characteristics of Ac and DC traction motor.
	2nd	<i>Doubt Clearing class</i>
	3rd	<i>Assignment Evaluation & Class Test</i>
	4th	<i>QUIZ Test-1</i>

13th	1st	Explain control of tapped field control
	2nd	Explain control of series parallel control
	3rd	Explain braking of regenerative braking
	4th	Explain braking with 1-phase series motor
14th	1st	Explain braking of Magnetic braking
	2nd	Explain braking of Magnetic braking
	3rd	Explain control of Meta-dyne control
	4th	<i>Doubt Clearing class</i>
15th	1st	<i>Assignment Evaluation & Class Test</i>
	2nd	<i>Discussion of Previous year questions</i>
	3rd	<i>Discussion of Previous year questions</i>
	4th	<i>Discussion of Previous year questions</i>