LESSON PLAN

Discipline: Elect. Engg.	**Semester:** Fifth (5th)	**Name of the Faculty:** Er Rosy Kar
Subject: Utilization of Electrical Energy & Traction	**No. of days/week class allotted:** Five (5)	**Semester from Date:** 15.09.22 **to Date:** 22.12.22 **No. of Weeks:** 15
WEEK	**CLASS DAY**	**THEORY TOPICS**
1st	1st	Definition and Basic Principle of electro deposition, Important terms regarding electrolysis
	2nd	Laws of electrolysis
	3rd	Faradays Definition of Current efficiency, energy efficiency
	4th	principle of electro deposition
	5th	Factors affecting the amount of electro deposition
2nd	1st	Factors affecting the amount of electro deposition Factors governing the Better electro- deposition
	2nd	State simple Examples of extraction of metals
	3rd	State simple Examples of extraction of metals (Cont…)
	4th	Application of electrolysis
	5th	**Review Class**
3rd	1st	Advantage of electrical heating
	2nd	Explain Mode of heat transfer & stephens law
	3rd	Discuss principle of resistance heating(direct)
	4th	Discuss principle of resistance heating(indirect)
	5th	Explain working principle of direct arc furnace and indirect arc furnace
4th	1st	principle of induction heating
	2nd	Working principle of direct core type, vertical core type & indirect core type induction furnace
	3rd	principle of coreless induction furnace &skin effect

	4th	principle of dielectric heating & its application
	5th	**Monthly test**
5th	1st	principle of microwave heating & its application
	2nd	**Review Class**
	3rd	Explain Principle Of arc welding
	4th	Discuss DC arc phenomena
	5th	Discuss AC arc phenomena
6th	1st	DC arc welding plants of single and multi operation type
	2nd	AC arc welding plants of single and multi operation type
	3rd	Types of arc welding
	4th	Explain Principle of resistance welding
	5th	Descriptive Study of different resistance welding methods
7th	1st	**Review Class**
	2nd	Nature of radiation and its spectrum
	3rd	Terms used in illuminations. Luminous intensity, lumen and intensity of illumination
	4th	MHCP,MSCP,MHSCP
	5th	**Monthly test**
8th	1st	Brightness, solid angle and luminous efficiency
	2nd	Explain the inverse square law and the cosine law
	3rd	Explain polar curves
	4th	Describe Light distribution and control. Explain related definitions like maintenance factor and depreciation factor
	5th	Design Simple lighting schemes and depreciation factor

9th	1st	Constructional features and working of Filament lamps , effect of variation of voltage on working of filament lamps.
	2nd	Explain discharge lamps.
	3rd	State Basic idea about excitation in gas discharge lamps
	4th	State constructional features and operation of fluorescent lamp(PL and PLL lamps)
	5th	Sodium vapor lamps High pressure mercury vapor lamps
10th	1st	Neon sign Lamps
	2nd	High lumen output and low consumption F.L
	3rd	**Review Class**
	4th	**Monthly test**
	5th	State Group drive & individual drive
11th	1st	Method of Choice of electric drives
	2nd	Explain Starting & running characteristics of DC motor
	3rd	Starting & running characteristics of AC motor
	4th	State Application of DC motor
	5th	State Application of 3phase induction motor
12th	1st	Application of 3phase synchronous ,1phase induction motor, series motor, universal motor , repulsion motor.
	2nd	**Review Class**
	3rd	Explain System of traction

	4th	System of track electrification
	5th	Running characteristics of DC and AC traction motor
13th	1st	Explain control of motorTapped field control
	2nd	Rheostat control
	3rd	Series parallel control
	4th	Multi-unit Control
	5th	Metadyne control
14th	1st	Explain Breaking of the following types Regenerative Breaking
	2nd	Breaking with 1-ph series motor
	3rd	Magnetic Breaking
	4th	**Review Class**
	5th	**Monthly test**
15th	1st	revision
	2nd	revision
	3rd	revision
	4th	revision
	5th	revision