

# SYNERGY POLYTECHNIC, BBSR

## The Lesson Plan

Discipline: ELECTRICAL ENGG	Semester: 5th	Name of the Teaching Faculty : DILIP KUMAR NAYAK
Subject : UET	No of Days/per week class allotted: 04	Semester from Date: 1.7.24 to Date: 18.11.24 No of Weeks : 14
Week	Class Day	Theory/Practical Topics
1st	1st	<b>1.ELECTROLYTIC PROCESS:</b>
	2nd	Definition and Basic principle of Electro Deposition.
	3rd	Faradays Laws of Electrolysis.
	4th	Definitions of current efficiency, Energy efficiency.
2nd	1st	Principle of Electro Deposition.
	2nd	Factors affecting the amount of Electro Deposition.
	3rd	State simple example of extraction of metals.
	4th	Application of Electrolysis.
3rd	1st	<b>2. ELECTRICAL HEATING:</b>
	2nd	Advantages of electrical heating.
	3rd	Modes of heat transfer and Stephen's Law.
	4th	Principle of Resistance heating. (Direct resistance and indirect resistance heating.)
4th	1st	Discuss working principle of direct arc furnace and indirect arc furnace.
	2nd	Principle of Induction heating.
	3rd	Working principle of direct core type, vertical core type and indirect core type Induction furnace.
	4th	Principle of coreless induction furnace and skin effect.
5th	1st	Principle of dielectric heating and its application.
	2nd	Principle of Microwave heating and its application.
	3rd	<b>3. PRINCIPLES OF ARC WELDING:</b>
	4th	Explain principle of arc welding.
6th	1st	Discuss D. C. & A. C. Arc phenomena.
	2nd	D.C. & A. C. arc welding plants of single and multi-operation type.
	3rd	Types of arc welding.
	4th	Explain principles of resistance welding.
7th	1st	Descriptive study of different resistance welding methods.
	2nd	<b>4. ILLUMINATION:Nature of Radiation and its spectrum.</b>
	3rd	Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination,
	4th	MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]
8th	1st	Explain the inverse square law and the cosine law.
	2nd	Explain polar curves.
	3rd	Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors.

	4th	Design simple lighting schemes and depreciation factor.
9th	1st	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)
10th	1st	Sodium vapor lamps.
	2nd	High pressure mercury vapor lamps, Neon sign lamps.
	3rd	High lumen output & low consumption fluorescent lamps.
	4th	<b>5. INDUSTRIAL DRIVES:</b> State group and individual drive.
11th	1st	Method of choice of electric drives.
	2nd	Explain starting and running characteristics of DC and AC motor.
	3rd	State Application of: DC motor
	4th	3-phase induction motor, 3 phase synchronous motors.
12th	1st	Single phase induction, series motor, universal motor and repulsion motor.
	2nd	<b>6. ELECTRIC TRACTION:</b> System of Track electrification.
	3rd	Running Characteristics of DC and AC traction motor.
	4th	Explain control of motor: Tapped field control,
13th	1st	Rheostatic control, Series parallel control.
	2nd	Multi-unit control, Metadyne control.
	3rd	Explain Braking of the following types:
	4th	Regenerative Braking.
14th	1st	Braking with 1-phase series motor.
	2nd	Magnetic Braking.

*D.L.S.*  
HoD / 1st 6/14

*S. J. S.*  
10/6/24  
Principal