

GOVT. POLYTECHNIC, BHADRAK  
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ACADEMIC LESSON PLAN FOR WINTER SEMESTER – 2021  
 Dept. of Electrical Engg., Govt. Polytechnic, Bhadrak

Name of the Faculty: **SUSHANTA KUMAR NAYAK**  
 Course Code: **TH-4 (UEET)**  
 Theory: **4P/Week**  
 Total Periods: **60**  
 Examination: **2021 WINTER (3 Hrs)**  
 Sem: **5<sup>TH</sup>**

Class Test: **20**  
 End Sem. Exam: **80**  
 Total Mark: **100**  
 Class Start: **15.9.2021**

Discipline:	Semester:	Name of the Teaching Faculty :
Subject: UEET	No. of Days/per week class allotted:	Semester from date: 01.10.2021 To Date: 08.01.2022
Week	Class Day	No. of Weeks: Theory/ Practical Topics
1 <sup>st</sup>	1 <sup>st</sup>	Definition and Basic principle of Electro Deposition.
	2 <sup>nd</sup>	Important terms regarding electrolysis
	3 <sup>rd</sup>	Faradays Laws of Electrolysis
	4 <sup>th</sup>	Definitions of current efficiency, Energy efficiency.
2 <sup>nd</sup>	1 <sup>st</sup>	Principle of Electro Deposition.
	2 <sup>nd</sup>	Factors affecting the amount of Electro Deposition.
	3 <sup>rd</sup>	Factors governing the electro deposition.
	4 <sup>th</sup>	State simple example of extraction of metals.
3 <sup>rd</sup>	1 <sup>st</sup>	Application of Electrolysis.
	2 <sup>nd</sup>	Advantages of electrical heating
	3 <sup>rd</sup>	Mode of heat transfer and Stephen's Law
	4 <sup>th</sup>	Principle of Resistance heating. (Direct resistance and indirect resistance heating.)
4 <sup>th</sup>	1 <sup>st</sup>	Discuss working principle of direct arc furnace and indirect arc furnace.
	2 <sup>nd</sup>	Principle of Induction heating
	3 <sup>rd</sup>	Working principle of direct core type, vertical core type and indirect core type Induction furnace.
	4 <sup>th</sup>	Principle of coreless induction furnace and skin effect.
5 <sup>th</sup>	1 <sup>st</sup>	Principle of dielectric heating and its application.
	2 <sup>nd</sup>	Principle of Microwave heating and its application.
	3 <sup>rd</sup>	Explain principle of arc welding.
	4 <sup>th</sup>	Discuss D. C. & A. C. Arc phenomena.
6 <sup>th</sup>	1 <sup>st</sup>	D.C. & A. C. arc welding plants of single and multi-operation type.
	2 <sup>nd</sup>	Types of arc welding.
	3 <sup>rd</sup>	Explain principles of resistance welding
	4 <sup>th</sup>	Descriptive study of different resistance welding methods

7 <sup>th</sup>	1 <sup>st</sup>	Nature of Radiation and its spectrum.
	2 <sup>nd</sup>	Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination, MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]
	3 <sup>rd</sup>	Explain the inverse square law and the cosine law
	4 <sup>th</sup>	Explain polar curves
8 <sup>th</sup>	1 <sup>st</sup>	Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors.
	2 <sup>nd</sup>	Design simple lighting schemes and depreciation factor.
	3 <sup>rd</sup>	Constructional feature and working of Filament lamps, effect of variation of voltage on working of filament lamps
	4 <sup>th</sup>	Explain Discharge lamps.
9 <sup>th</sup>	1 <sup>st</sup>	State Basic idea about excitation in gas discharge lamps.
	2 <sup>nd</sup>	State constructional features and operation of Fluorescent lamp. (PL and PLL Lamps)
	3 <sup>rd</sup>	Sodium vapor lamps
	4 <sup>th</sup>	High pressure mercury vapor lamps.
10 <sup>th</sup>	1 <sup>st</sup>	Neon sign lamps
	2 <sup>nd</sup>	High lumen output & low consumption fluorescent lamps.
	3 <sup>rd</sup>	State group and individual drive
	4 <sup>th</sup>	Method of choice of electric drives.
11 <sup>th</sup>	1 <sup>st</sup>	Explain starting and running characteristics of DC and AC motor.
	2 <sup>nd</sup>	State Application of: DC motor.
	3 <sup>rd</sup>	3-phase induction motor.
	4 <sup>th</sup>	3 phase synchronous motors
12 <sup>th</sup>	1 <sup>st</sup>	Single phase induction, series motor, universal motor and repulsion motor.
	2 <sup>nd</sup>	Explain system of traction
	3 <sup>rd</sup>	System of Track electrification
	4 <sup>th</sup>	Running Characteristics of DC and AC traction motor.
13 <sup>th</sup>	1 <sup>st</sup>	Explain control of motor: Tapped field control.
	2 <sup>nd</sup>	Rheostatic control.
	3 <sup>rd</sup>	Series parallel control.
	4 <sup>th</sup>	Multi-unit control.
14 <sup>th</sup>	1 <sup>st</sup>	Metadyne control.
	2 <sup>nd</sup>	Explain Braking of the following types: Regenerative Braking.
	3 <sup>rd</sup>	Braking with 1-phase series motor.
	4 <sup>th</sup>	Magnetic Braking.
15 <sup>th</sup>	1 <sup>st</sup>	Previous Year Question discussion of Ch-1
	2 <sup>nd</sup>	Previous Year Question discussion of Ch-2 & Ch-3
	3 <sup>rd</sup>	Previous Year Question discussion of Ch-4 & Ch-5
	4 <sup>th</sup>	Previous Year Question discussion of Ch-6