



# Orissa School of Mining Engineering Keonjhar

## Department of Electrical Engineering Lesson plan(UEET)

### VISION OF OUR DEPARTMENT:

To provide excellent knowledge and enrich the problem solving skills of the students in the field of Electrical Engineering with a focus to prepare the students for industry need, recognized as innovative leader, responsible citizen and improve the environment.

### MISSION OF OUR DEPARTMENT:

1. Prepare the students with strong fundamental concepts, analytical capability, and problem solving skills. Create an ambience of education through faculty training, self-learning, sound academic practices and research endeavors.
2. Provide opportunities to promote organizational and leadership skills in students through various extra- curricular and co-curricular events.
3. To make the students as far as possible industry ready to enhance their employability in the industries.
4. To improve department industry collaboration and to maintain effective operational environment.

## Program Educational Objectives

The Program Educational Objectives (PEOs) of the Electrical Engineering Department are given below:

1. PEO1- To engage in Design of Systems, tools and applications in the field of electrical Engineering and allied engineering Industries.
2. PEO2- To apply the knowledge of electrical engineering to solve problems of social relevance and/or pursue higher education
3. PEO3- To work effectively as individuals and as team members in multidisciplinary projects by exhibit leadership capability, triggering social and economic commitment and inculcate community services and protect environment
4. PEO4- Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.



Subject : UTILIZATION OF ELECTRICAL ENERGY AND TRACTION(01/08/23-30/11/23)			
Discipline: <b>Electrical Engineering</b>		Name of the Faculty: <b>suchismita sahu</b>	
Course Code:	<b>TH-4</b>	Semester:	<b>5TH</b>
Total Periods:	<b>60</b>	Examination:	<b>2023(WINTER)</b>
Theory Periods:	<b>4P/W</b>	Internal Test:	<b>20</b>
Maximum Marks:	<b>100</b>	End Semester Examination:	<b>80</b>

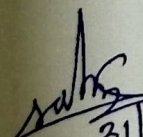
Week	Class	Date and period	Theory Topics
1 <sup>st</sup>	1 <sup>st</sup>	02/08/2023 1p	INTRODUCTION Briefing Syllabus discussion
	2 <sup>nd</sup>	03/08/2023 1p	1.ELECTROLYTIC PROCESS: 1.1 Definition and Basic principle of Electro Deposition. 1.2 Important terms regarding electrolysis.
	3 <sup>rd</sup>	04/08/2023 1p	1.3 Faradays Laws of Electrolysis. 1.4 Definitions of current efficiency, Energy efficiency. 1.5 Principle of Electro Deposition.
2 <sup>nd</sup>	1 <sup>st</sup>	07/08/2023 1p	1.6 Factors affecting the amount of Electro Deposition. 1.7 Factors governing the electro deposition
	2 <sup>nd</sup>	09/08/2023 1p	1.8 State simple example of extraction of metals 1.9 Application of Electrolysis
	3 <sup>rd</sup>	10/08/2023 1p	REVISION AND DOUBT CLEARING
	4 <sup>th</sup>	11/08/2023 1p	2.ELECTRICAL HEATING: 2.1 Advantages of electrical heating.
3 <sup>rd</sup>	1 <sup>st</sup>	14/08/2023 1p	2.2 Mode of heat transfer and Stephen's Law.
	2 <sup>nd</sup>	16/08/2023 1p	2.3 Principle of Resistance heating. (Direct resistance and indirect resistance heating.)
	3 <sup>rd</sup>	17/08/2023 1p	2.4 Discuss working principle of direct arc furnace and indirect arc furnace.
	4 <sup>th</sup>	18/08/2023 1p	2.5 Principle of Induction heating.
4 <sup>th</sup>	1 <sup>st</sup>	21/08/2023 1p	2.5.1 Working principle of direct core type, vertical core type and indirect core type Induction furnace.
	2 <sup>nd</sup>	23/08/2023 1p	2.5.2 Principle of coreless induction furnace and skin effect.
	3 <sup>rd</sup>	24/08/2023 1p	2.6 Principle of dielectric heating and its application.
	4 <sup>th</sup>	25/08/2023 1p	2.7 Principle of Microwave heating and its application .
5 <sup>th</sup>	1 <sup>st</sup>	28/08/2023 1p	REVISION AND DOUBT CLEARING
	2 <sup>nd</sup>	31/08/2023 1p	1 <sup>st</sup> class test
	3 <sup>rd</sup>	01/09/2023	3.PRINCIPLES OF ARC WELDING:

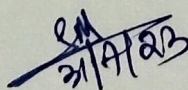


		1p	3.1 Explain principle of arc welding
6 <sup>th</sup>	1 <sup>st</sup>	04/09/2023 1p	3.2 Discuss D.C. & A.C. Arc phenomena
	2 <sup>nd</sup>	07/09/2023 1p	3.3 D.C. & A.C. arc welding plants of single and multi-operation type
	3 <sup>rd</sup>	08/09/2023 1p	3.4 Types of arc welding
7 <sup>th</sup>	1 <sup>st</sup>	11/09/2023 1p	3.5 Explain principles of resistance welding.
	2 <sup>nd</sup>	13/09/2023 1p	3.6 Descriptive study of different resistance welding methods
	3 <sup>rd</sup>	14/09/2023 1p	REVISION AND DOUBT CLEARING
	4 <sup>th</sup>	15/09/2023 1p	<b>4. ILLUMINATION:</b> 4.1 Nature of Radiation and its spectrum.
8 <sup>th</sup>	1 <sup>st</sup>	18/09/2023 1p	4.2 Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination, MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]
	2 <sup>nd</sup>	21/09/2023 1p	4.3 Explain the inverse square law and the cosine law
	3 <sup>rd</sup>	22/09/2023 1p	4.4 Explain polar curves.
9 <sup>th</sup>	1 <sup>st</sup>	25/09/2023 1p	4.5 Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors
	2 <sup>nd</sup>	27/09/2023 1p	4.6 Design simple lighting schemes and depreciation factor.
	3 <sup>rd</sup>	28/09/2023 1p	4.7 Constructional feature and working of Filament lamps, effect of variation of voltage on working of filament lamps.
10 <sup>th</sup>	1 <sup>st</sup>	04/10/2023 1p	4.8 Explain Discharge lamps.
	2 <sup>nd</sup>	05/10/2023 1p	4.9 State Basic idea about excitation in gas discharge lamps
	3 <sup>rd</sup>	06/10/2023 1p	4.10 State constructional features and operation of Fluorescent lamp. (PL and PLL Lamps)
11 <sup>th</sup>	1 <sup>st</sup>	09/10/2023 1p	4.11 Sodium vapor lamps.
	2 <sup>nd</sup>	11/10/2023 1p	4.12 High pressure mercury vapor lamps
	3 <sup>rd</sup>	12/10/2023 1p	4.13 Neon sign lamps. 4.14 High lumen output & low consumption fluorescent lamps
	4 <sup>th</sup>	13/10/2023 1p	REVISION AND DOUBT CLEARING
12 <sup>th</sup>	1 <sup>st</sup>	16/10/2023 1p	<b>INTERNAL ASSESSMENT</b>
	2 <sup>nd</sup>	18/10/2023 1p	<b>5. INDUSTRIAL DRIVES:</b> 5.1 State group and individual drive.
	3 <sup>rd</sup>	19/10/2023 1p	5.2 Method of choice of electric drives.
	4 <sup>th</sup>	20/10/2023 1p	5.3 Explain starting and running characteristics of DC motor



		1p	
	2 <sup>nd</sup>	01/11/2023 1p	5.5 State Application of 5.5 1DC motor.
	3 <sup>rd</sup>	02/11/2023 1p	5.5.2 3-phase induction motor. 5.5.3 3-phase synchronous motors.
	4 <sup>th</sup>	03/11/2023 1p	5.5.4 Series motor, Single phase induction, Universal motor and repulsion motor.
14 <sup>th</sup>	1 <sup>st</sup>	06/11/2023 1p	REVISION AND DOUBT CLEARING
	2 <sup>nd</sup>	08/11/2023 1p	6. ELECTRIC TRACTION: 6.1 Explain system of traction.
	3 <sup>rd</sup>	09/11/2023 1p	6.2 System of Track electrification
	4 <sup>th</sup>	10/11/2023 1p	6.3 Running Characteristics of DC traction motor.
15 <sup>th</sup>	1 <sup>st</sup>	13/11/2023 1p	6.3 Running Characteristics of AC traction motor.
	2 <sup>nd</sup>	15/11/2023 1p	6.4 Explain control of motor: 6.4.1 Tapped field control.
	3 <sup>rd</sup>	16/11/2023 1p	6.4.2 Rheostatic control. 6.4.3 Multi-unit control.
	4 <sup>th</sup>	17/11/2023 1p	6.4.4 Metadyne control
16 <sup>th</sup>	1 <sup>st</sup>	20/11/2023 1p	6.5 Explain Braking of the following types: 6.5.1 Regenerative Braking
	2 <sup>nd</sup>	22/11/2023 1p	6.5.2 Braking with 1-phase series motor. 6.5.3 Magnetic Braking.
	3 <sup>rd</sup>	23/11/2023 1p	REVISION AND DOUBT CLEARING
	4 <sup>th</sup>	24/11/2023 1p	2 <sup>nd</sup> class test
17 <sup>th</sup>	1 <sup>st</sup>	29/11/2023 1p	VST 1
	2 <sup>nd</sup>	30/11/2023 1p	VST 2

  
31/07/23  
LECTURER

  
21/11/23  
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PRINCIPAL