BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF ELECTRICAL ENGINEERING

SUBJECT : UTILIZATION OF ELECTRICAL ENGG **ACADEMIC SESSION: 2024-25**

SEMESTER: 5TH **SECTION: B**

FACULTY- S.K NANDI

Discipline: **Electrical Engg.**	**Semester:5th (A)**	**Semester: From Date: 01/07/2024 To Date: 08/11/2024** **No. of weeks: 18 WEEKS**
Subject- UTILIZATION OF ELECTRICAL ENGG (TH-4)	**No. of Days/per week class allotted:04 PERIODS/WEEK (MON,TUE,WED,FRI-1 Period Each)**	
Week	**Class Day**	**Theory/Practical Topics**
1st (01/07/2024-06/07/2024)	01-07-2024	**1. ELECTROLYTIC PROCESS:** 1.1. Definition and Basic principle of Electro Deposition
	02-07-2024	1.2 Important terms regarding electrolysis
	03-07-2024	1.3 Faradays Laws of Electrolysis
	05-07-2024	1.4Definitions of current efficiency, Energy efficiency.
2nd (08/07/2024-13/07/2024)	08-07-2024	1.5. Principle of Electro Deposition.
	09-07-2024	1.6 Factors affecting the amount of Electro Deposition.
	10-07-2024	1.7. Factors governing the electro deposition.
	12-07-2024	1.8 State simple example of extraction of metals.
3rd (15/07/2024-20/07/2024)	15-07-2024	1.9. Application of Electrolysis.
	16-07-2024	**2. ELECTRICAL HEATING**: 2.1. Advantages of electrical heating
	19-07-2024	2.2 Mode of heat transfer and Stephen's Law.
4th (22/07/2024-27/07/2024)	22-07-2024	2.3. Principle of Resistance heating. (Direct resistance

	23-07-2024	2.3. Principle of Resistance heating. (Indirect resistance heating.)
	24-07-2024	2.4. Discuss working principle of direct arc furnace
	26-07-2024	2.4. Discuss working principle of indirect arc furnace
5th (29/07/2024-03/08/2024)	29-07-2024	2.5 Principle of Induction heating
	30-07-2024	2.5.1. Working principle of direct core type, vertical core type and indirect core type Induction furnace.
	31-07-2024	2.5.1. Working principle of indirect core type Induction furnace.
	02-08-2024	2.5.2. Principle of coreless induction furnace and skin effect
6th (05/08/2024-10/08/2024)	05-08-2024	2.6. Principle of dielectric heating and its application..
	06-08-2024	2.7. Principle of Microwave heating and its application
	07-08-2024	**Class test 1**
	09-08-2024	**3. PRINCIPLES OF ARC WELDING**: 3.1. Explain principle of arc welding
7th (12/08/2024-17/08/2024)	12-08-2024	3.2. Discuss D. C. & A. C. Arc phenomena.
	13-08-2024	3.3. D.C. & A. C. arc welding plants of single and multi-operation type.
	14-08-2024	3.3. D.C. & A. C. arc welding plants of single and multi-operation type.
	16-08-2024	3.4. Types of arc welding
8th(19/08/2024-24/08/2024)	20-08-2024	3.4. Types of arc welding
	21-08-2024	3.5. Explain principles of resistance welding
	23-08-2024	3.6. Descriptive study of different resistance welding methods
9th (26/08/2024-31/08/2024)	27-08-2024	3.6. Descriptive study of different resistance welding methods
	28-08-2024	**4. ILLUMINATION**: 4.1. Nature of Radiation and its spectrum.
	30-08-2024	4.2. Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of

		illumination, MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.].
10th (02/09/2024-07/09/2024)	02-09-2024	4.3. Explain the inverse square law and the cosine law
	03-09-2024	4.4 Explain polar curves. 4.5. Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factor
	04-09-2024	4.6 Design simple lighting schemes and depreciation factor
	06-09-2024	4.7. Constructional feature and working of Filament lamps, effect of variation of voltage
11th (09/09/2024-14/09/2024)	09-09-2024	**Internal Assessment**
	10-09-2024	**Internal Assessment**
	11-09-2024	4.8Explain Discharge lamps. 4.9. State Basic idea about excitation in gas discharge lamps.
	13-09-2024	4.10. State constructional factures and operation of Fluorescent lamp. (PL and PLL Lamps)
12th(16/09/2024-21/09/2024)	17-09-2024	4.11. Sodium vapor lamps
	18-09-2024	4.12. High pressure mercury vapor lamps
	20-09-2024	4.13. Neon sign lamps.
13th (23/09/2024-28/09/2024)	23-09-2024	4.14. High lumen output & low consumption fluorescent lamps.
	24-09-2024	**5. INDUSTRIAL DRIVES:** 5.1. State group and individual drive. 5.2. Method of choice of electric drives
	25-09-2024	5.3. Explain starting and running characteristics of DC and AC motor
	27-09-2024	5.4. State Application of: 5.4.1. DC motor. 5.4.2. 3-phase induction motor.
14th (30/09/2024-05/10/2024)	30-09-2024	**Quiz test**

	01-10-2024	5.4.3. 3 phase synchronous motors. 5.4.4. Single phase induction, series motor, universal motor and repulsion motor
	04-10-2024	**Class test 2**
15th (14/10/2024-19/10/2024)	14-10-2024	5.4.3. 3 phase synchronous motors.
	15-10-2024	5.4.4. Single phase induction, series motor, universal motor and repulsion motor.
	18-10-2024	5.4.4. Single phase induction, series motor, universal motor and repulsion motor.
16th (21/10/2024-26/10/2024)	21-10-2024	**6. ELECTRIC TRACTION:** 6.1. Explain system of traction
	22-10-2024	6.2. System of Track electrification
	23-10-2024	6.3. Running Characteristics of DC and AC traction motor.
	25-10-2024	6.4. Explain control of motor: 6.4.1. Tapped field control.
17th (28/10/2024-02/11/2024)	28-10-2024	6.4.2. Rheostatic control 6.4.3. Series parallel control
	29-10-2024	6.4.4. Multi-unit control. .
	30-10-2024	6.4.5. Metadyne control
	01-11-2024	6.5. Explain Braking of the following types: 6.5.1. Regenerative Braking
18th (04/11/2024-08/11/2024)	04-11-2024	6.5.2. Braking with 1-phase series motor
	05-11-2024	6.5.3 magnetic braking
	06-11-2024	**DISCUSSION OF PREVIOUS YEAR QUESTIONS**
	08-11-2024	**REVISION**