ACADEMIC LESSON PLAN OF WINTER 2021

Discipline: Electrical	Semester: 5th (1st Shift)	Name of the Teaching Faculty: ROJALIN CHOUDHURY
Subject: UTILIZATION OF ELECTRICAL ENERGY AND TRACTION	No. of days/per week class allotted : 4p/week	Semester From: 1st October 2021 to 8th January 2022 No. of weeks:13 weeks
Week	**Class Day**	Theory Topics
1st	4/10/2021	**1. ELECTROLYTIC PROCESS** 1.1 Definition and Basic principle of Electro Deposition
	4/10/2021	1.2 Important terms regarding electrolysis.
	5/10/201	1.3 Faradays Laws of Electrolysis
	7/10/2021	1.4 Definitions of current efficiency, Energy efficiency
2nd	21/10/2021	1.5 Principle of Electro Deposition
3rd	25/10/2021	1.6 Factors affecting the amount of Electro Deposition.
	25/10/2021	1.7 Factors governing the electro deposition.
	26/10/2021	1.8 State simple example of extraction of metals.
	28/10/2021	1.9 Application of Electrolysis.
4th	1/11/2021	**2. ELECTRICAL HEATING** 2.1. Advantages of electrical heating 2.2. Explain mode of heat transfer and Stephen's Law.
	1/11/2021	2.3. Discuss principle of Resistance heating. 2.3.1 Direct Resistance heating 2.3.2 Indirect Resistance heating
	2/11/2021	2.4. Explain working principle of direct arc furnace and indirect arc furnace
	5/11/201	2.5. Principle of Induction heating.
5th	8/11/2021	2.6. Working principle of direct core type, vertical core type and indirect core type Induction furnace
	8/11/2021	2.7. Principle of coreless induction furnace and skin effect
	9/11/2021	2.8. Principle of dielectric heating and its application
	11/11/2021	2.9. Principle of Microwave heating and its application
	12/11/2021	**3. PRINCIPLES OF ARC WELDING** 3.1 Explain principle of arc welding.
	12/11/2021	3.2 Discuss D. C. & A. C. arc phenomena
6th	15/11/2021	3.3 D.C. & A. C. arc welding plants of single and multi-operation type.
	16/11/2021	3.4 Types of arc welding.
	20/11/2021	3.5 Explain principles of resistance welding.
7th	22/11/2021	3.6 Descriptive study of different resistance welding methods
	23/11/2021	**4. ILLUMINATION** 4 . 1 Nature of Radiation and its spectrum
	26/11/2021	4 . 2 Terms used in Illuminations. i. Luminous intensity ii. Lumen iii. Intensity of illumination iv. MHCP v. MSCP
	26/11/2021	vi. MHSCP vii. Brightness viii. Solid angle ix. Luminous efficiency
	27/11/2021	4 . 3 Explain the inverse square law and the cosine law.
8th	29/11/2021	4 . 4 Explain polar curves.
	30/11/2021	4 . 5 Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors.
	3/12/2021	4 . 6 Design simple lighting schemes and depreciation factor.
	3/12/2021	4 . 7 Constructional feature and working of Filament lamps, effect of variation of voltage

		on working of filament lamps.
	3/12/2021	4 . 8 Explain Discharge lamps.
	4/12/2021	4 . 9 State Basic idea about excitation in gas discharge lamps.
9th	6/12/2021	4 . 9 State Basic idea about excitation in gas discharge lamps.
	7/12/2021	4 . 10 State constructional factures and operation of: - Fluorescent lamp. (PL and PLL Lamps)
	10/12/2021	4 . 10 State constructional factures and operation of: - Fluorescent lamp. (PL and PLL Lamps)
	10/12/2021	4 . 11 Sodium vapor lamps.
	10/12/2021	4 . 11 Sodium vapor lamps.
	11/12/2021	4 . 12 High pressure mercury vapour lamps.
10th	13/12/2021	4 . 13 Neon sign lamps.
	14/12/2021	4 . 14 High lumen output & low consumption fluorescent lamps.
	17/12/2021	4 . 14 High lumen output & low consumption fluorescent lamps.
	17/12/2021	**5. INDUSTRIAL DRIVES** 5 . 1 State group and individual drive.
	17/12/2021	5 . 2 Method of choice of electric drives.
	18/12/2021	5 . 3 Explain starting and running characteristics of DC and AC motor.
11th	20/12/2021	5 . 4 State Application of : 5.4.1 DC motor
	21/12/2021	5.4.2 phase induction motor
	24/12/2021	5.4.3 phase synchronous motors.
	24/12/2021	5.4.4 Single phase induction, series motor, universal motor and repulsion motor.
12th	27/12/2021	**6. ELECTRIC TRACTION** 6. 1. Explain system of traction
	28/12/2021	6. 2. System of Track electrification.
	31/12/2021	6. 3. Running Characteristics of DC and AC traction motor.(cont..)
	31/12/2021	6. 3. Running Characteristics of DC and AC traction motor
	31/12/2021	6. 4. Explain control of motor
13th	3/1/2022	6.4.1 Tapped field control
	4/1/2022	6.4.2 Rheostatic control
	7/1/2022	6.4.3 Series parallel control
	7/1/2022	6.4.4 Metadyne control
	7/1/2022	6. 5. Explain Braking of the following types.
	8/1/2022	6.5.1 Regenerative Braking 6.5.2 Braking with 1-phase series motor 6.5.3 Magnetic Braking

Signature of Teaching Faculty

ACADEMIC LESSON PLAN OF WINTER 2021

Discipline: Electrical	Semester: 5th (2nd Shift)	Name of the Teaching Faculty: ROJALIN CHOUDHURY
Subject: UTILIZATION OF ELECTRICAL ENERGY AND TRACTION	No. of days/per week class allotted : 4p/week	Semester From: 1st October 2021 to 8th January 2022 No. of weeks:14 weeks
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2nd	5/10/201	1.3 Faradays Laws of Electrolysis
	8/10/2021	1.4 Definitions of current efficiency, Energy efficiency
	8/10/2021	1.5 Principle of Electro Deposition
	9/10/2021	1.6 Factors affecting the amount of Electro Deposition.
3rd	22/10/2021	1.7 Factors governing the electro deposition.
	22/10/2021	1.8 State simple example of extraction of metals.
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	29/10/2021	2.4. Explain working principle of direct arc furnace and indirect arc furnace
	30/10/201	2.5. Principle of Induction heating.
5th	2/11/2021	2.6. Working principle of direct core type, vertical core type and indirect core type Induction furnace
	5/11/2021	2.7. Principle of coreless induction furnace and skin effect
	5/11/2021	2.8. Principle of dielectric heating and its application
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	27/11/2021	4 . 8 Explain Discharge lamps.
9th	29/11/2021	4 . 9 State Basic idea about excitation in gas discharge lamps.
	1/12/2021	4 . 9 State Basic idea about excitation in gas discharge lamps.
	1/12/2021	4 . 10 State constructional factures and operation of: - Fluorescent lamp. (PL and PLL Lamps)
	2/12/2021	4 . 10 State constructional factures and operation of: - Fluorescent lamp. (PL and PLL Lamps)
	4/12/2021	4 . 11 Sodium vapor lamps.
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