Lesson Plan			
	Discipline:Electrical Engineering	**Semester-5th Winter 2023**	**Name of the Teachng Faculty: Sri Hrusikesh Nayak**
Sl. No.	**Subject-UTILIZATION OF ELECTRICAL ENERGY & TRACTION SEC-A**	**No. Of Days/Week class alloted:04**	**Semester From date: 07/008/2023 To date: 30/11/2023. No of weeks: 16**
	Weeks/Months	**Class Day**	**Topic**
1	1st Week	1st (08.08.2023)	1. Definition and Basic principle of Electro Deposition.
		2nd (09.08.2023)	1.2. Important terms regarding electrolysis.
		3rd (10.08.2023)	1.3. Faradays Laws of Electrolysis. 1.4. Definitions of current efficiency, Energy efficiency.
		4th(11.08.2023)	1.5. Principle of Electro Deposition.
2	2nd Week	1st (16.08.2023)	1.6. Factors affecting the amount of Electro Deposition.
		2nd (17.08.2023)	1.7. Factors governing the electro deposition.
		3rd (18.08.2023)	1.8. State simple example of extraction of metals.
3	3rd Week	1st (22.08.2023)	1.9. Application of Electrolysis.
		2nd (23.08.2023)	2.1. Advantages of electrical heating.
		3rd (24.08.2023)	2.2. Mode of heat transfer and Stephen's Law.
		4th (25.08.2023)	2.3. Principle of Resistance heating. (Direct resistance and indirect resistance heating.)
4	4th Week	1st(29.08.2023)	2.4. Discuss working principle of direct arc furnace and indirect arc furnace.
		2nd (31.08.2023)	2.5. Principle of Induction heating.
		3rd (01.09.2023)	2.5.1. Working principle of direct core type, vertical core type and indirect core type Induction furnace.
5	5th Week	1st (05.09.2023)	2.5.2. Principle of coreless induction furnace and skin effect.
		2nd (07.09.2023)	2.6. Principle of dielectric heating and its application. 2.7. Principle of Microwave heating and its application.
		3rd (08.09.2023)	3.1. Explain principle of arc welding.
6	**6th Week**	1st (12.09.2023)	3.2. Discuss D. C. & A. C. Arc phenomena
		2nd (13.09.2023)	3.3. D.C. & A. C. arc welding plants of single and multi-operation type.
		3rd (14.09.2023)	3.4. Types of arc welding.
		4th (15.09.2023)	3.5. Explain principles of resistance welding.
7	**7th Week**	1st (21.09.2023)	3.6. Descriptive study of different resistance welding methods.
		2nd (22.09.2023)	4.1. Nature of Radiation and its spectrum.
8	8th Week	1st (26.09.2023)	4.2. Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination, MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]
		2nd (27.09.2023)	4.3. Explain the inverse square law and the cosine law.
		3rd (28.09.20223)	4.4. Explain polar curves.

9	9th Week	1st (03.10.2023)	4.5. Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors.
		2nd (04.10.2023)	4.6. Design simple lighting schemes and depreciation factor.
		3rd (05.10.2023)	4.7. Constructional feature and working of Filament lamps, effect of variation of voltageon working of filament lamps.
		4th (06.10.2023)	4.8. Explain Discharge lamps.
10	10th Week	1st (10.10.2023)	4.9. State Basic idea about excitation in gas discharge lamps.
		2nd (11.10.2023)	4.10. State constructional factures and operation of Fluorescent lamp. (PL and PLL Lamps)
		3rd (12.10.2023)	4.11. Sodium vapor lamps.
		4th (13.10.2023)	4.12. High pressure mercury vapor lamps.
11	11th Week	1st (17.10.2023)	4.13. Neon sign lamps.
		2nd (18.10.2023)	4.14. High lumen output & low consumption fluorescent lamps.
		3rd (19.10.2023)	5.1. State group and individual drive.
		4th (20.10.2023)	5.2. Method of choice of electric drives.
12	12th Week	1st (31.10..2023)	5.3. Explain starting and running characteristics of DC and AC motor.
		2nd (01.11.2023)	6.3 Construction and principles of Multimeter. (Analog and Digital)
		3rd (02.11.2023)	6.4 Measurement of inductance by Maxewell's Bridge method.
		4th (03.11.2023)	6.5 Measurement of capacitance by Schering Bridge method
13	13th Week	1st (07.11.2023)	5.4. State Application of:5.4.1. DC motor.
		2nd (08.11.2023)	5.4.2. 3-phase induction motor.
		3rd (09.11.2023)	5.4.3. 3 phase synchronous motors.
		4th (10.11.2023)	5.4.4. Single phase induction, series motor, universal motor and repulsion motor.
14	14th Week	1st (14.11.2023)	5.4.4. Single phase induction, series motor, universal motor and repulsion motor.
		2nd (15.11.2023)	6.1. Explain system of traction.
		3rd (16.11.2023)	6.2. System of Track electrification.
		4th (17.11.2023)	6.3. Running Characteristics of DC and AC traction motor.
15	15th Week	1st (21.11.2023)	6.3. Running Characteristics of DC and AC traction motor.
		2nd (22.11.2023)	6.4. Explain control of motor:
		3rd (23.11.2023)	6.4.1. Tapped field control.
		4th (24.11.2023)	6.4.2. Rheostatic control.
16	16th Week	1st (28.11.2023)	6.4.3. Series parallel control.
		2nd (29.11.2023)	6.4.4. Multi-unit control.
		2nd (30.11.2023)	6.4.5. Metadyne control.