Lesson Plan

Name of the Faculty:
Discipline : Electrical Engineering
Semester : 5th
Subject : Utilisation of Electrical Energy
Lesson Plan Duration : 15 weeks(From October2021**)**

Week	Day	Topic
1	1	Introduction Of The Subject, Its Need, Applications
	2	Nature Of Light, Visibility Spectrum Curve Of Relative Sensitivity Of Human Eye And Wave Length Of Light
	3	Definition: Luminous Flux, Solid Angle, Luminous Intensity
	4	Illumination, Luminous Efficiency, Depreciation Factor, Coefficient Of Utilization
	5	Space To Height Ratio, Reflection Factor, Glare, Shadow, Lux
2	6	Laws Of Illumination - Simple Numericals
	7	Different Type Of Lamps, Construction And Working Of Incandescent And Discharge Lamps - Their Characteristics, Fittings Required For Filament Lamp
	8	Mercury Vapour Sodium Lamp, Fluorescent Lamp, Halogen Lamp, Neon Lamp
	9	Compact Filament Lamp(Cfl), Led Lamp, Comparison Of Incandescent, Fluorescent, CFL & LED
	10	Calculation Of Number Of Light Points For Interior Illumination,
3	11	Calculation Of Illumination At Different Points, Considerations Involved In Simple Design Problems
	12	Illumination Schemes; Indoor And Outdoor Illumination Levels

	13	Main Requirements Of Proper Lighting; Absence Of Glare, Contrast And Shadow
	14	Awareness About Time Switches, Street Lighting, Flood Lighting
	15	Monument Lighting And Decorative Lighting, Light Characteristics Etc.
4	16	Advantages Of Electrical Heating, Resistance Heating - Direct Resistance Heating
	17	Indirect Resistance Heating, Electric Ovens, Their Temperature Range
	18	Properties Of Resistance Heating Elements, Domestic Water Heaters
	19	Other Heating Appliances, Thermostat Control Circuit
	20	Induction Heating; Principle Of Core Type Induction Furnace, Their Construction And Applications
5	21	Principle Of Coreless Type Induction Furnace, Their Construction And Applications
	22	Electric Arc Heating; Direct And Indirect Arc Heating
	23	Construction, Working And Applications Of Arc Furnace
	24	Dielectric Heating, Applications In Various Industrial Fields
	25	Infra-Red Heating And Its Applications
6	26	Microwave Heating And Its Applications
	27	Solar Heating
	28	Calculation Of Resistance Heating Elements
	29	Advantages Of Electric Welding, Principles Of Resistance Welding
	30	Spot, Projection And Seam Welding
7	31	Butt Welding, Welding Equipment
	32	Principle Of Arc Production, Electric Arc Welding, Characteristics Of Arc
	33	Carbon Arc And Metal Arc Welding
	34	Hydrogen Arc Welding Method And Their Applications
	35	Power Supply Requirement. Advantages Of Using Coated Electrodes
8	36	Comparison Between Ac And Dc Arc Welding
	37	Welding Control Circuits, Welding Of Aluminum And Copper
	38	Introduction To Electro Deposition, Need Of Electro-Deposition
	39	Laws Of Electrolysis
	40	Process Of Electro-Deposition - Clearing, Operation, Depositionof Metals, Polishing And Buffing
9	41	Equipment And Accessories For Electroplating
	42	Factors Affecting Electro-Deposition
	43	Principle Of Galvanizing And Its Applications, Principles Of Anodizing And Its Applications
	44	Electroplating Of Non-Conducting Materials
	45	Manufacture Of Chemicals By Electrolytic Process
10	46	Power Supplies For Electroplating
	47	Principle Of Air Conditioning, Vapour Pressure, Refrigeration Cycle, Eco-Friendly Refrigerants
	48	Electrical Circuits Used In Refrigeration
	49	Electrical Circuits Used In Air Conditioning
	50	Electrical Circuits Used In Water Coolers.
11	51	Advantages Of Electric Drives, Characteristics Of Different Mechanical Loads
	52	Types Of Motors Used As Electric Drive

	53	Electric Braking - Plugging
	54	Electric Braking - Rheostatic Braking
	55	Electric Braking - Regenerative Braking
12	56	General Idea About The Methods Of Power Transfer By Direct Coupling And Belt Drive
	57	Gears, Chain Drives Etc.
	58	Examples Of Selection Of Motors For Different Types Of Domestic Loads
	59	Selection Of Drive For Applications Such As General, Workshop, Textile Mill, Papermill
	60	Selection Of Drive For Applications Such As Steel Mill, Printing Press, Crane And Lift Etc
13	61	. Application Of Flywheel, Specifications Of Commonly Used Motors E.G. Squirrel Cage Motors, Slip Ring Induction Motors
	62	Specifications Of Ac Series Motors, Fractional Kilo Watt(Fkw) Motors
	63	Selection Of Motors For Domestic Appliances
	64	Advantages Of Electric Traction Over Other Types Of Traction
	65	Different Systems Of Electric Traction, Dc And Ac Systems, Diesel Electric System
14	66	Types Of Services - Urban, Sub-Urban, And Main Line And Their Speed-Time Curves
	67	Different Accessories For Track Electrification; Such As Overhead Catenary Wire
	68	Conductor Rail System, Current Collector-Pentagraph
	69	Factors Affecting Scheduled Speed
	70	Electrical Block Diagram Of An Electric Locomotive With Description Of Various Equipment And Accessories Used
15	71	Types Of Motors Used For Electric Traction
	72	Power Supply Arrangements
	73	Starting And Braking Of Electric Locomotives
	74	Introduction To Emu And Metro Railways
	75	Train Lighting Scheme