"PVC" NSSK G.P. BILASPUR at KALOL	Department :-Eletrical Engg. (6th sem)		Subject- UEE		
	Course- Diploma		Duration-3Years		
SYLLABSE COVERRAGE	Total Periods -56		Theory-56		
Sr no. / PeriodNo's	Topic	Details	InstructionReference	AdditionalStudyRecommended	Remarks
1 / 1-8	**Electric Drives,**	1.1 Advantages of Electric Drives 1.2 Characteristics of different mechanical loads 1.3 Types of Motors used as electric drive 1.4 Electric braking 1.4.1 Plugging 1.4.2 Rheostatic braking 1.4.3 Regenerative braking 1.5 Methods of power transfer by direct coupling by using devices like belt drive, gears, chain drives. 1.6 Selection of motors for different types of domestic loads 1.7 Selection of drive for applications such as general workshop, textile mill, paper mill, steel mill, printing press, cranes and lift. Applications of flywheel.	A Text Book. of Electrical Power by Dr. S. L.Uppal	Utilization of Electrical Energy by J.B. Gupta,	
2 / 9-16	**Illumination**	2.1 Nature of light, visibility spect of relative sensitivity of human wave length of light 2.2 Definition: flux, solid angle, luminous illumination, luminous depreciation factor, coefficient of space to height ratio, reflection fac shadow, lux level. 2.3 Laws of Il 2.4 Different type of lamps, constru working of incandescent and lamps– their characteristics, fitting for filament lamp, mercury vapo lamp, fluorescent lamp, halogen la lamp, Compact fluorescent la lamps. 2.5 Main requirements lighting; absence of glare, con shadow 2.6 Illumination require street lighting, flood lighting, r lighting and decorative lighting. based lighting systems, advantage based lighting	--------do--------	--------do--------	
3 / 17-24	**Electric Heating.**	3.1 Advantages of Electrical Heating 3.2 Electrical Heating Methods: 3.2.1 Resistance heating – direct and indirect resistance heating, electric ovens, their temperature range, properties of resistance heating elements, thermostat control circuit 3.2.2 Induction Heating: Principle of core type and coreless induction furnace, their construction and applications 3.2.3 Electric Arc	--------do--------	--------do--------	

			Heating: direct and indirect arc heating, construction, working and applications of arc furnace. 3.2.4 Dielectric heating: working principle and applications in industrial fields 3.2.5 Infra-red heating and its applications 3.2.6 Microwave heating and its applications.			
4	25-30	**Electric Welding**	4.1 Advantages of Electric Welding 4.2 Welding methods 4.2.1 Principles of resistance welding, types – spot, projection, seam and butt welding, welding equipment 4.2.2 Principle of arc production, electric arc welding, characteristics of arc; carbon arc, metal arc, hydrogen arc welding method and their applications. Power supply requirement. Advantages of using coated electrodes, comparison between AC and DC arc welding, welding control circuits, welding of aluminum and copper materials.	--------do--------	--------do--------	
5	31-36	**Electrolytic Processes .**	5.1 Need of Electro-deposition 5.2 Electrolysis, process of electro-de clearing, operation, deposition o polishing and buffing 5.3 Equipr accessories for electroplating 5.4 affecting electro-deposition Electroplating of non-conducting m	--------do--------	--------do--------	
6	37-42	**Electrical Circuits used in Refrigeration , Air Conditioning and Water Coolers**	6.1 Principle of air conditioning, vapor pressure, refrigeration cycle, eco-friendly refrigerants 6.2 Description and Working of Electrical circuits used in 6.2.1 Refrigerator, 6.2.2 Air-conditioner 6.2.3 Water coolerrials	--------do--------	--------do--------	
7	43-56	**Electric Traction**	7.1 Requirements of ideal Traction System, Different systems of electric traction, DC and AC systems, diesel electric system, types of services – urban, sub-urban, and main line and their speed-time curves, Advantages of Electric Traction 7.2 Different accessories for track electrification; such as overhead catenary wire, conductor rail system, current collector-pantograph 7.3 Electrical block diagram of an Electric Locomotive with description of	--------do--------	--------do--------	

			various equipment and accessories used. 7.4 Types of motors used for electric traction 7.5 Starting and braking of electric locomotives 7.6 Introduction to EMU (Electrical Multiple Unit) and Metro Railway 7.7 Modern Electrical Traction systems, their features and advantages			

Approved	HOD Sign
Date : 13/02/23	