

GOVERNMENT CO.ED POLYTECHNIC RAIPUR (C.G)

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Session: April-May

Session start as per university calendar:

Course Name: Utilization of Electrical Energy & Traction

Name of Subject Teacher:

Lecturer plan T+L = 3

Course code: 2024671(024)

Discipline: Mechanical		Semester: 6th	Class room Instruction Start Date:						
S.No.	Chapter No.	Topics	Sub Topic to be covered	Total hours	No. of periods planned	Actual No of periods taken	Date of Class Conduction	Use of AV resources if any	Remarks if any
1	1	Electrical Drives	Types of electrical drives	16	1	1	16/01/25	NA	
			Motors used for electrical drives – DC series, shunt and seperately excited motors		2	2	17/01/25		
			Selection of electrical motors		1	1	20/01/25		
			Torque/speed, torque/current characteristics of DC series, shunt motors		2	2	22/01/25		
			Heating and cooling of electrical motors, insulating materials		2	1	23/01/25		
			Size and rating of motors standard ratings of motor, classes of duty, ambient temperature		2	1	24/01/25		
			Types and classification of loads, enclosure for rotating electrical machines		2	1	25/01/25		
2	2	Electric Heating and welding	Advantages of electrical heating, essential requirements of good	16	3	3	31/02/25 31/02/25 24/02/25	NA	20/02/25 – Doubt class.
			Method of electric heating –		5	4	5, 6, 7, 8		
			Types of resistance welding, choice of welding time, welding electrode		4	4	12, 13, 17, 18		
			Welding transformer and rectifiers		4	4	27, 28, 3, 4		
3	3	Illumination	Introduction, imp terms, laws of illumination	19	4	4	7/03, 10/03 11/03, 12/03	NA	
			Types of sources of illumination,		4	2	17/03, 18		
			Arc lamps, LED, LASER, Neon,		4	2	19/03, 21/03		
			Types of lighting schemes, direct,		4	2	24/03, 26/03		1/04/25 –
			General Ideas about street lighting, factory, lighting flood lighting		3	3	27/03, 28/03 03/04		Quiz – 1
4	4	Electric Traction drives	Requirements of ideal traction	22	4	4	4/04, 7, 8, 9	NA	
			System of track electrification		4	2	11, 15/04		
			Special mechanical and electrical featureof traction motors, current		4	2	16/04		
			Traction motors- DC series, three phase induction motors		5	1	19/04		
			Types of electric braking, plugging, dynamic and regenerative braking.		5	1	19/04		
5	5	Other Aspects of Electric Traction	Types of service- main line, urban and sub urban	22	3	1	22/04/25	NA	
			Speed time curve for main line, urban and sub urban srvice		2	1	27/01/25		
			Basic definitions – Crest speed, avg		2	1	28/01/25		
			Simplified trapezoidal and quadrilateral speed time curve, traction effort		4	2	29/01/25		
			Specific energy consumption, dead weight, accelerating weight,		4	1	30/01/25		
			Fixed capital, Working capital, Subsidy		3	1	31/01/25		
			and Cost of Project.						
				95 Hours					