

Lesson Plan

Name of the Faculty : Smt. Mukesh
Discipline : Electrical Engineering
Semester : 5th Semester
Subject : Electrical Traction System
Lesson Plan Duration : 13-15 Week

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	General description of Traction system in India. Electric Traction Systems: Types, Advantages and disadvantages over other traction system.		
	2	Track electrification: DC System, composite system – single phase to three phase system and single phase AC to DC system (Kando system).		
	3	Advantages and disadvantages of single phase 25 KV AC system over DC system.		
	4	Types of services – urban, sub-urban, and main line.		
	5	Speed-time curves, Average speed and schedule speed of different types of traction service.		
	6	Factors affecting the schedule speed.		
	7	Desirable characteristics and Special features of traction motors.		
	8	Suitability of DC series motor, three phase Induction motor for traction.		
	9, 10	Traction motor Control of DC locomotives and EMUs: series parallel control combined with rheostatic control,		

	11	energy efficiency and limitations of series parallel cum rheostatic control, chopper control of motors in DC traction systems.		
	12	Traction control system of AC locomotives: Tap changer, step less voltage control through use of thyristors.		
	13	Mechanical braking: vacuum braking		
	14, 15, 16	Revision		
	17, 18	Revision		
	19	Electric braking: Rheostatic braking and regenerative braking.		
	20	Revision		
	21, 22, 23	Presentation		
	24,25	Overhead catenary wire.		
	26	Conductor rail system.		
	27,28	Current collector-pentagraph.		
	29,30	Coach wiring and lighting devices.		