

2: ELECTRICAL TECHNOLOGY (FA, FB, FC)

Scheme of Examination

Std. XII

Paper	Title of the Paper	Theory		Practical		Term work	Project work	I.V.*	OJT**	Total Marks
		Marks	Time (Hrs)	Marks	Time (Hrs)					
1	Electrical Wiring	80	3	80	3	10	10	10	10	200

* IV = Industrial Visits ** OJT = On Job Training

Paper I: Electrical Wiring (FA)

Objectives

To enable the students to

1. Acquire knowledge and skill about industrial and commercial wiring.
2. Identify and uses of different tools.
3. Understand planning, estimation and costing of industrial and commercial wiring.
4. Know about generation and transmission of electrical power.
5. Know about HT and LT substations
6. Know about different workshop tools and uses

Theory

Sr. No.	Unit	Sub-Unit	No. of Periods
1.	Industrial and commercial wiring	Introduction	24
		Study of Layouts and wiring diagram	
		Power circuit	
		Street light circuit	
		Control panel wiring	
		Protective Devices	
		Load Balancing of 3 phase supply	
		Troubleshooting and maintenance of wiring system of office	
		Maintenance & repair of commercial/Industrial wiring	
		IE rules	
		Testing of commercial/industrial wiring with megger	
		Earthing	
		Plate and rod type earthing	
Pipe earthing			

2.	Planning estimation and costing of industrial and commercial wiring	Introduction	16
		Estimation, costing and bill	
		Elements of estimation	
		Performa for estimation and costing	
		Elements of Costing	
		Material, Labour, Expenses, Methods of costing	
		Content of invoice Performa of invoice	
		Tenders	
3.	Generation and transmission	Importance of electrical power in day to day life	24
		Methods of power generating	
		1) Hydroelectric power station	
		2) Thermal power station	
		3) Nuclear power station	
		4) Solar power generation	
		5) Wind power generation	
		Co- generation	
		Need of co- generation	
		Types of co-generation	
		Topping cycle	
		Bottoming cycle	
		Power system layout types of power transmission system	
		Transmission voltages	
		Types of insulators used in transmission line	
Lighting arrestor			
4.	HT and LT substation	Introduction	24
		Protective Devices	
		Switch gears	
		Introduction to layout and maintenance schedule	
		Single line diagram	
5.	Illumination	Circuit study installation and application of illumination sources	16
		Mercury, Vapor lamp	
		Sodium Vapor lamp	
		Metal halide lamps	
		LED Based modern lighting fixtures	
		Decoration lighting	

6.	Electrical services interactive lecture workshop lab, self performed	Introduction	16
		Classification of tools	
		Electrical hand tools	
		Mechanical hand tools	
		Cutting and holding tools	
		Application of other tools	
		Application of machines	
		Application of instruments	
		List of equipments	
		Raw materials	
		Planning, Layout and setting of electrical lab self performed	
		Up keeping of electrical shop	
		Safety precaution and measures	
Total		120	