

4108 – DISTRIBUTION AND ESTIMATION									
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)				
Lectures	Practical	Credits			Theory		Practical Ex.	Total	
4	-	4	25	-	3 Hrs	100	-	125	
Pre-requisite		Source	Semester	Theory	Test	Total	TW	PR	Gr Total
4104		ELL		75	25	100	-	-	100

Rationale: This subject is designed to teach the students facts, procedure and standard practices & I E Rules related to distribution of power in a locality, domestic installation industrial installation. This course also imparts the knowledge in the field of planning and lay out of distribution line and wiring installation.
The students will acquire competency to work as operation & maintenance supervision in the field of distribution and wiring installation.

COURSE CONTENTS		Hrs	Mks
1. DISTRIBUTION SYSTEM		6	8
Classification of distribution system w.r.t. voltage and numbers of wires, comparison between D.C. 2 wire A.C. single phase and A.C. 3 phase (3 wire & 4 wire) system, Concept of feeder distributor and service mains, Types of distributors-radial, ring and interconnected, System voltage and permissible voltage drop in various parts of distribution systems for urban, semi urban and rural areas.			

	12	16
2. DESIGN OF A. C. DISTRIBUTOR		
L. T. distributor- Concept of connected load, demand and diversity factor, Selection of size of conductor and type of conductors, standard size used for distributors. Calculation of inductive reactance and resistance of line (No derivations), Calculation of voltage drop and losses in radial distributors fed from one end and ring distributor, Calculation of voltage drop and losses in 11kv ring and radial distributors fed from one end loads. Indian Electricity Rules and standard practices (Both impedance & regulation constant methods)	10	16
3. ESTIMATION OF DISTRIBUTION SYSTEM		
Components of distribution line and feeder and their importance, Layout of distribution line and 11 KV feeder for an area indicating pole position, stay set position, stay set position, position of earth electrodes, Preparation of materials schedule for distribution line for 3 phase A. C. system, Estimation of capacity of distribution transformer for a particular locality, (Visit to a 11 K V L T Distributor and identification of its various components.)	4	8
4. RURAL ELECTRIFICATION		
Types and size of conductors used, Standard rating of transformer preferred, Special features of systems used -single phase SWER, 3 phase ABC etc.	4	8
5. FAULTS IN DISTRIBUTION SYSTEM		
Types of fault, frequency of occurrence in distribution system. Effect of each fault on system.	12	16
6. DOMESTIC WIRING		
Types of wiring system - PVC Casing Capping, Conduit wiring and cleat wiring. Comparative study of the wiring systems and material used for each. Indian Electricity Rules and standard practices relevant to light, fan and power wiring. Planning and layout of domestic installation including stair case light circuit, Godown wiring, Estimation of quantity of material for a given installation.	12	16
7. INDUSTRIAL WIRING		
Switch board and panels - Types of panel, Types of switches, types of L.T. breakers such as MCB, MCCB, ELCB, busbars and other devices used on panel, planning and layout of industrial switch boards panel, considering light and fan circuit, Power circuit and calculation of main supply panel rating. Method of wiring in industrial installation (cable systems and bus way system (overhead), Planning, selection of size of wire and rating of other components and layout for electrical installation in small scale industry	4	12
8. EARTHING		
Importance of earthing, Indian Electricity rules and Indian Standard practices for earthing of equipment (domestic and industrial), Method of earthing -pipe and plate earthing various terms related to earthing, Factors affecting earth resistance, ways and means to reduce earth resistance.	64	100
Total		

REFERENCE BOOKS:

1. Electrical power system design by M. V. Deshpande
2. Transmission & distribution of Electrical Energy by Raina, Anand and Singhal
3. Industrial wiring by G. Polyakow, Progress pub. Moscow.
4. Electrical Design Estimating and Costing by Raina & Bhattacharya
5. Electrical wiring Estimation and costing by Arora B.D.
6. Electrical Installation Estimation Costing, by J.B. Gupta.
7. Electrical Power distribution system by A. S. Pabla.