

Lesson Plan

Name of Faculty		Sh. Ashok Kumar
Discipline		Electrical Engineering
Semester		4 th semester
Subject		Installation and maintenance of electrical equipment
Lesson Plan Duration		From March 2023 to June 2023
Work load (Theory + Practical) Per Week		(04+00)
Week	Day	Topics
1 st	1	Unit 1 : Tools, Accessories and instruments required for installation maintenance
	2	accessories and repair work Knowledge of Indian Electricity rules, safety codes,
	3	causes prevention of accidents, artificial respiration of an electrocuted person
	4	workmen's safety devices
2 nd	1	Class test and revision
	2	Unit 2 : Installation , 2.1 Installation of transmission and Distribution Lines:
	3	Erection of steel structures, connecting jumpers, tee-off points, joints and dead ends
	4	crossing of roads, streets, power/telecommunication lines and
3 rd	1	railway line crossings clearances; earthing of transmission lines and guarding,
	2	spacing and configuration of conductors:
	3	Arrangement for suspension and strain insulators, bird guards, anti-climbing devices and danger plates;
	4	Sizes of conductor, earth wire and guy wires.
4 th	1	Laying of service lines, earthing, provision of service fuses,
	2	installation of energy meters
	3	2.2 Laying of Underground Cables:
	4	Inspection, storage, transportation and handling of cables
5 th	1	cable handling equipment, cable laying depths and clearances from other services
	2	such as: water, sewerage, gas, heating and other mains,
	3	and also a series of power and telecommunication cables and coordination with these services
	4	excavation of trenches, direct cable laying, including laying of cable from the drum,
6 th	1	laying cable in the trench, taking all measurements and making drawings,
	2	Back filling of trenches with earth or sand, Laying protective layer of bricks etc.
	3	Laying of cables into pipes and conduits and within buildings.
	4	Class test/ revision
7 th	1	Problem solution
	2	2.3 Elementary idea regarding, inspection and handling of transformers;
	3	pole mounted substations, plinth mounted substations, grid substation, bus bars
	4	isolators, voltage and current transformers, lightning arrestors,
8 th	1	control and relay panels, HT/LT circuit breakers, LT switches, installation of
	2	Power/distribution transformers, dehydration. Earthing system
	3	fencing of yard, equipment foundations and trenches etc.
	4	2.4 Testing of various electrical equipment such as electrical motor,
9 th	1	transformers, cables, and generators, motor control centres, medium
	2	voltage distribution panels, power control centres, motor control centres,
	3	lighting arrangement, storage, pre-installation checks, connecting and
	4	starting, pre-commissioning checks, drying out
10 th	1	Class test/ revision
	2	Problem solution
	3	3 Maintenance
	4	3.1 Types of maintenance, maintenance schedules, procedures

11 th	1	3.2 Maintenance of Transmission and Distribution System
	2	Authorized persons, danger notice, caution notice, permit to work,
	3	arranging of shutdowns personally, temporary earthing, cancellation of permit and restoration of supply
	4	Patrolling and visual inspection of lines - points to be noted during patrolling from ground;
12 th	1	special inspections and night inspections;
	2	Location of faults using Meggar, effect of open or loose neutral connections,
	3	provision of proper fuses on service lines and their effect on system,
	4	causes of dim and flickering lights
13 th	1	3.3 Maintenance of Distribution Transformers
	2	Transformer maintenance and points to be attended to in respect of various items of equipment
	3	Checking of insulation resistance, transformer oil level and BDV test of oil, measurement of earth resistance
	4	3.4 Maintenance of Grid Substations, Checking and maintenance of busbars,
14 th	1	Isolating switches, HT/LT circuit breakers, LT switches. Power transformers
	2	3.5 Maintenance of Motors, Over hauling of motors, preventive maintenance, trouble shooting of electric motors,
	3	3.6 Domestic Installation: Introduction ; testing of electrical installation of a building, testing of insulation resistance to earth
	4	testing of insulation and resistance between conductors,
15 th	1	continuity or open circuit test
	2	Class test/ revision
	3	Viva-voice related to subject
	4	Revision/Review/Test of old HSBTE Papers