

Lesson Plan

Name of the Faculty : Arvinder Singh

Discipline : Electrical Engineering

Semester : 5th

Subject : Electrical Power-I

Lesson Plan duration : 15 weeks

Work load per week : Lecture-04 and Practical-00

Week	Theory	
	Lecture day	Topic (including Assignments and Test)
1 st	1 st	Subject introduction and overview
	2 nd	Unit-1 Power Generation: Main resources of energy, conventional and Non-Conventional
	3 rd	Different types of power stations- Thermal Power plant, its construction and working, its advantages, disadvantage, selection of site
	4 th	Hydro Power plant, its construction and working, its advantages, disadvantage, selection of site
2 nd	5 th	Revision & discussion of above two plants
	6 th	Gas Power plant, its construction and working, its advantages, disadvantage, selection of site
	7 th	Diesel Power plant, its construction and working, its advantages, disadvantage, selection of site
	8 th	Continue the previous topic
3 rd	9 th	Nuclear Power plant, its construction and working, its advantages, disadvantage, selection of site
	10 th	Continue the previous topic & Comparison of different types of Plants
	11 th	Importance of non-conventional sources of energy in the present scenario. Brief details of solar energy, bio-energy, wind energy
	12 th	Revision and Assignment
4 th	13 th	Unit-2 Economics of Generation: Fixed and running cost, load estimation, load curves
	14 th	Demand factor, load factor, diversity factor
	15 th	Power factor and their effect on cost of generation & simple problems
	16 th	Base load and peak load power stations
5 th	17 th	Inter-connection of power stations and its advantages
	18 th	Concept of regional and national grid.
	19 th	Revision & Assignment
	20 th	Unit-3 Transmission Systems: Layout of transmission system
6 th	21 st	Selection of voltage for H.T and L.T lines
	22 nd	Advantages of high voltage for Transmission both AC and DC
	23 rd	AC versus DC for power transmission
	24 th	Conductor material and sizes from standard tables

7 th	25 th	Types of supports and types of insulators
	26 th	Types of conductors
	27 th	Selection of insulators, conductors, earth wire and their accessories
	28 th	Transposition of conductors
8 th	29 th	String efficiency of suspension type insulators, Bundle Conductors
	30 th	Revision & discussion
	31 st	Importance of sag and calculation of sag
	32 nd	Effects of wind and ice related problems
9 th	33 rd	Indian electricity rules pertaining to clearance
	34 th	Calculation of resistance, inductance and capacitance without derivation in a.c. transmission line
	35 th	Voltage regulation and concept of corona.
	36 th	Effects of corona and remedial measures
10 th	37 th	Transmission Losses
	38 th	Revision & Assignment
	39 th	Unit-4 Distribution System: Lay out of HT and LT distribution system
	40 th	Constructional feature of distribution lines and their erection.
11 th	41 st	LT feeders and service mains; Simple problems on AC radial distribution system
	42 nd	Determination of size of conductor
	43 rd	Preparation of estimates of HT and LT lines (OH and Cables).
	44 th	Constructional features of LT (400 V) and HT (11 kV) underground cables
12 th	45 th	advantages and disadvantages of underground system with respect to Overhead system.
	46 th	Losses in distribution system
	47 th	Faults in underground cables-determine fault location by Blavier Test
	48 th	Murray Loop Test, Varley Loop Test
13 th	49 th	Revision & Assignment
	50 th	Unit-5 Substations: Brief idea about substations; outdoor grid sub-station 220/132 KV
	51 st	66/33 KV outdoor substations
	52 nd	Pole mounted substations
14 th	53 rd	Indoor substation
	54 th	Layout of 33/11 kV/400V distribution substation
	55 th	Various auxiliaries and equipment associated with 33/11 kV/400V distribution substation
	56 th	Revision & Assignment
15 th	57 th	Unit-6 Power Factor: Concept of power factor and Reasons and disadvantages of low power factor
	58 th	Methods for improvement of power factor using capacitor banks, VAR
	59 th	Static Compensator (SVC)
	60 th	Revision & Assignment