Lesson Plan

Name of Faculty		Sh. Sushil Kumar
Discipline		Electrical Engineering
Semester		5th
Subject		Electrical Power- I
Lesson Plan Duration		From Sept2022 to Jan2023
Work load (Theory + Practical) Per Week		(04+00)
Week	**Theory**	
	Day	**Topics**
1st	1	**Unit1Power Generation**
	2	Main resources of energy, conventional and non-conventional
	3	Different types of power stations, thermal power plant
	4	Hydro Power plant Flow diagrams and operation
2nd	1	Gas power plant Flow diagrams and operation
	2	diesel power station Flow diagrams and operation
	3	nuclear power Plant Flow diagrams and operation
	4	comparison of the generating stations on the basis of running cost, site, starting, maintenance
3rd	1	Revision/Assignment/ Class Test
	2	**Unit2:Economics of Generation**
	3	Fixed and running cost, load estimation, load curves
	4	Demand factor, load factor, diversity factor
4th	1	Power factor and their effect on cost of generation
	2	Simple problems based on above relations
	3	Revision/Assignment/ Class Test
	4	Base load and peak load power stations
5th	1	inter-connection of power stations and its advantages
	2	Concept of regional and national grid
	3	Revision/Assignment/ Class Test
	4	**Unit3 Transmission Systems**
6th	1	Layout of transmission system, selection of voltage for H.T and L.T lines
	2	advantages of high voltage for Transmission of power in both AC and
	3	Comparison of different systems: AC versus DC for power transmission,
	4	material and sizes from standard tables
7th	1	Constructional features of transmission lines
	2	Types of supports
	3	Types of insulators
	4	Types of conductors, Selection of insulators
8th	1	conductors, earth wire and their accessories
	2	Transposition of conductors and string efficiency of suspension type insulators, Bundle Conductors
	3	Mechanical features of line
	4	Importance of sag, calculation of sag
9th	1	effects of wind and ice related problems
	2	Indian electricity rules pertaining to clearance
	3	Electrical features of line: Calculation of resistance, inductance and capacitance
	4	A.C. transmission line, voltage regulation, and concept of corona. Effects of corona and remedial measures
10th	1	Transmission Losses
	2	Revision/Assignment/ Class Test
	3	**Unit 4: Distribution System** Lay out of HT and LT distribution system

	4	constructional feature of distribution lines and their erection
11th	1	LT feeders and service mains
	2	Simple problems on AC radial distribution system
	3	Determination of size of conductor
	4	Preparation of estimates of HT and LT lines
12th	1	Constructional features of LT (400 V), HT (II kV) underground cables
	2	Advantages and disadvantages of underground system with respect to overhead system.
	3	Calculation of losses in distribution system
	4	Faults in underground cables-determine fault location by
13th	1	Murray Loop Test,
	2	Varley Loop Test
	3	Revision/Assignment/ Class Test
	4	Revision/Problem solution/ Class Test
14th	1	**Unit 5: Substations**: Brief idea about substations
	2	Outdoor grid sub-station 220/132 KV
	3	66/33 KV outdoor Substations
	4	Pole mounted substations and indoor substation
15th	1	Layout of 33/11 distribution substation and various auxiliaries
	2	Layout of kV/400V distribution substation and various auxiliaries
	3	Revision/Assignment/ Class Test
	4	**Unit 6: power factor**, reasons and disadvantages of low power factor
16th	1	Methods for improvement of power factor using capacitor banks,
	2	VAR Static Compensator (SVC)
	3	Solve old HSBTE Papers
	4	Revision/Review/Test of old HSBTE Papers