STATE INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electrical Engineering

LESSON PLAN

Faculty Name: Dr. Monika Gaba (Assistant Professor)
Subject Name: Electrical Power Generation **Subject Code: B24-EE-209**
Year:-2nd Year **Semester: 3rd**

Lecture No	Unit No	Topic	COs Covered
L 1	Unit-I	Introduction of sources of Electrical Energy	CO1
L 2		Basics of Electric real and reactive power	
L 3		Load curves and Important term used in electrical system planning and operation (maximum demand, load factor, diversity factor, capacity factor, utilization factor)	
L 4		Types of loads, load forecasting methods	
L 5		Discussion of base load and peak load	
L 6		cost of electrical energy (Capital Cost, Annual Fixed cost, fixed charge rates)	
L 7		Operating cost (Annual Plant cost, generation cost)	
L 8		Depreciation of plant, Straight Line Method, Sinking Fund Method	
L 9		Effect of load factor on cost of Electrical Energy	
L 10		Choice of type of generation, size of generator and number of units	
L 11		Economic Comparison of Alternatives	
L 12		Numerical	
L 13	Unit-II	Different types of tariffs (Flat Demand Rate, Straight Meter Rate, Block Meter Rate)	CO1,CO2
L 14		Different types of tariffs (Hopkinson Demand Rate, Wright Demand Rate, Spot pricing)	
L 15		Methods of Power Factor improvement	
L 16		Numerical on Power Factor improvement	
L 17		Choice of site, classification of hydro-electric plants	
L18		Main parts and working of plants – (Storage Reservoir, Types of Dams, Surge Tank, Penstock, Spillway, Tailrace etc)	
L19		Types of Turbines (Pelton, Francis, Propeller and Kaplan Turbines)	
L20		Characteristics of hydro electric generators.	
L 21		Governor and Speed Regulation- Purpose and Functioning	
L 22		Revision	

L 23	Unit-III	Working of Thermal power plants and its components	CO2, CO3
L 24		Main components of Thermal power plants	
L 25		Main components of Thermal power plants	
L 26		Layout of their layout	
L 27		Main parts and working of stations	
L 28		Thermodynamic cycles	
L 29		Fuel handling, combustion and combustion equipment	
L 30		Circulating water schemes and supply of makeup water	
L 31		Revision	
L32	Unit-IV	Introduction of Nuclear Power plant, Choice of site for Nuclear Power plant	CO4
L33		Basics of Nuclear Physics	
L34		Classification of reactors – Pressurized Water reactor, Boiling water reactor, Heavy Water Cooled and Moderated Reactor	
L35		Classification of reactors – Gas cooled Reactor, Fast breeder reactor, Fusion reactor	
L36		Main Part of Nuclear Power plant	
L 37		Components of Nuclear Reactors	
		Discussion of problems associated with Nuclear Power Plant	
L 38		Economics of Nuclear Power Generation	
L 39		Introduction of diesel Power plants, Advantages and Disadvantages, Applications of diesel Power plants	
L 40		Diesel Plant Equipment	
L 41		Diesel Plant Layout and their working	
L 42		Performance and fuel requirement of Diesel plant	
L 43		Advantages of combined operation of Power plants	
L 44		Plant requirements of base load and peak load operation	
L 45		Combined working of run-off river plant and steam plant. Short-term hydro-thermal Coordination	
L 46		Short-term hydro-thermal Coordination	
L 47		Long-term hydro-thermal Coordination	
L 48		Revision	

Text Books:

1. Deshpande MV, "Power Plant Engineering" Tata McGraw Hill, 1st Edition, 2005.

2. Gupta BR, "Generation of Electrical Energy" S Chand Publishing, 7th Edition, 2017

3. Wood AJ, Wallenberg BF, "Power Generation and Control" John Wiley, 2nd Edition, 1996.

4. Singh SN, "Electric Power Generation, Transmission, and Distribution" Prentice Hall of India, 2nd Edition, 2008.

References:

1. I. J. Nagrath and D. P. Kothari, 'Modern Power System Analysis', Tata McGraw-Hill publishing company, New Delhi, 1990.