

# Government Polytechnic Nawada

Department of Science & Technology, Govt. of Bihar

## Lesson Plan

Name: Ajeet Kumar

Designation: Lecturer

Dept : Electrical Engg

Target Student: 3rd Sem EE

**Subject: ELECTRICAL POWER GENERATION**

**Subject code:1620304**

**Subject Credits: 03**

SL. No.	Name Of Unit	Lecture Sequence No.	Name of topic
1.	<b>Unit-1</b> Basics of Power Generation	1	Importance of electrical power in today life & Various sources of energy
		2	Overview of method of electrical power generation & Comparison of Sources of power.
2.	<b>Unit-2</b> Thermal Power Stations	3	List of thermal power stations in the state with their capacities
		4	Selection of site for thermal power stations & block diagram of Major parts of thermal power stations.
		5	Quality of fuel and its effect on quality of power generation
		6	Operation of Boiler in details.
		7	Operation of Economizer & Air pre heater in details.
		8	Operation of Super-heaters & re-heaters & Steam prime movers.
		9	Operation of Condensers & cooling towers.
3.	<b>Unit-3</b> Nuclear Power Stations	10	Block diagram and working of Nuclear Power Station
		11	Construction and working of Nuclear Reactor
		12	Fuels used in Nuclear Power Station

		13	Economics of Nuclear Power Station
		14	List of Nuclear power stations in state & county with their capacities.
4.	<b>Unit-4</b> Hydro Power Stations	15	List of Hydro Power stations with their capacities & number of units in the state.
		16	Selection of site and Classification of Hydro Power stations
		17	Layout of hydro Power stations
		18	Types of Turbines & generators used
		19	Selection of turbine and alternator according to water head and capacity of Hydro Power stations.
5.	<b>Unit-5</b> Diesel Power Stations	20	Applications of diesel power stations
		21	Diesel electric plant- Main components ( Block Diagram)
		22	Different types of engines & their working
		23	Operation of diesel power stations
		24	Maintenance & trouble shooting chart of diesel plant.
6.	<b>Unit-6</b> Non-Conventional Energy Sources	25	Types of non-conventional energy sources & Solar Energy: Potential of solar energy & Photovoltaic effect – for solar energy.
		26	Construction & materials used in solar photo-voltaic cells ;Working & applications of solar energy.
		27	Wind Energy: Selection of site for wind mills & Principle of electricity generation with the help of wind energy.
		28	Block diagram and working of Wind energy plant and its applications.
		29	List of major wind farms in the state with their approximate capacities.
		30	Bio-mass & Bio-gas energy: Composition of Bio-gas & its calorific value; Traditional & non-traditional Biogas plants & Bio-mass based power generation plants & their capacities.
		31	Geo-thermal Energy and its Applications.
		32	Ocean energy: Ocean thermal Electric conversion; Energy from tides ;Site requirements & Advantages and Limitations of Tidal power generation
		33	Fuel Cells: Construction, working and applications
5.	<b>Unit-7</b> Economics Of Power Generation	34	Terms commonly used in system operation: connected load, firm power, cold reserve, hot reserve, spinning reserve.
		35	Terms used in system operation such as Load-curve, load duration curve
		36	Concept of Integrated duration curve
		37	Simple numerical based on plotting of Load-curve, load duration curve & Integrated duration curve

		38	Factors affecting the cost of Generation: Average demand, Maximum demand, plant capacity factor
		39	Factors affecting the cost of Generation: plant use factor, Diversity factor& load factor
		40	Simple numerical based upon factors affecting the cost of Generation.
		41	Choice of Size & number of Generator Units
		42	Difficulties involved while selection of size & number of generating units.
4.	<b>Unit-8</b> Interconnected Power Systems	43	Combined operation of power stations
		44	Comparison of various types of power stations & Advantages of Interconnection
		45	Base load & peak loads, load allocation among various types of power stations
		46	Economic loading of interconnected stations
		47	Load sharing and transfer of load between power stations.
		48	Inter connection of power stations at state and national level

*Ajout kumar*

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Signature of the faculty