

"PVC" NSSK Govt. Polytechnic Bilaspur at Kalol (H.P.)

Lesson Plan (Theory)

Branch : Electrical Engg.

Semester : 4th

Subject : Electrical Power System - I

Session : Feb 2023 – Jun 2023

Teacher : Sh Ashwani Kumar

Class Room:

Sr. No.	No. of Lectures	Chapter/ Unit Description	Detail of Contents	Reference Resources	Rem.
1	4	Sources of Electrical Power Generation	<p>Conventional sources of electrical power generation such as coal, hydro, nuclear, natural gases and their contribution in power generation in present energy scenario.</p> <p>Non-conventional sources of electrical power generation such solar, wind, mini hydro, geothermal, tidal: Their relevance and contribution in power generation in present energy scenario.</p>	R1,R2,R3	
2	11	Hydroelectric Power Plant	<p>Introduction to Hydrology, Calculation of power generated in hydro power plant.</p> <p>Hydro power plant layout, function of each component.</p> <p>Selection of site for hydro power plant.</p> <p>Classification of hydro power on the basis of water discharge & head available.</p> <p>Water Turbine: Various types of water turbines and their comparison on the basis of head, discharge, speed and direction of water flow.</p> <p>Merits and demerits of hydro power plant.</p>	-do-	
3	11	Steam Power Plant	<p>Site selection for steam power plant.</p> <p>Layouts of various sections in steam power plant.</p> <p>Function of heat exchanger, economizer & cooling tower in steam power plant.</p> <p>Efficiency of steam power plant.</p> <p>Merits and demerits of steam power plant.</p>	-do-	
4	5	Nuclear Power Plant	<p>Introduction to Nuclear reaction, nuclear fission & fusion.</p> <p>Site selection for nuclear power plant.</p> <p>Layout of nuclear power plant & function of each component.</p> <p>Nuclear reactor control.</p> <p>Safety issues and their remedial measures</p>	-do-	

			in nuclear power plant. Merits and demerits of Nuclear Power Plants. Concept of Nuclear Waste Disposal.	
5	4	Diesel Power Plant	Elements of Diesel Power Plant & function of each component. Merits and demerits of diesel power plant. Performance and efficiency of diesel power plant. Applications of diesel power plant.	-do-
6	11	Economics of Power Generation	Fixed and running cost, load estimation, load curves, connected load, maximum demand, demand factor, diversity factor, Chronological load curve, load duration curve, Energy load curve, load factor, Capacity factor, utilization factor, numerical problems. Classification of Power Plants: Base load, peak load and standby power stations, stand by capacity in power plants, selection of number and size of units for different types of power stations. Inter-connection of power stations and its advantages, concept of regional and national grid.	-do-
7	4	Tariffs	Concept of Tariffs Types of Tariff system, Numerical problems related to electricity tariff	-do-



Signature of Teacher with Date



Signature of H.O. (EE)

Teaching Resources:

- R1. Principles of Power Systems by VK Mehta, S Chand and Co., New Delhi
- R2. A Course in Electrical Power by A. Chakraborty, Dhanpat Rai & Sons, New Delhi
- R3. <http://www.electrical4u.com>