

"PVC" NSSK GOVT POLYTECHNIC BILASPUR

PLANNED THEORY SYLLABUS COVERAGE

Department: Mechanical Engg.			Subject: POWER PLANT ENGINEERING			
Sem. & Branch: 4TH / Mech. Engg.			Duration: 3 Year			
Teacher: Suresh Kumar						
Syllabus coverage		Total periods:-42				Practical : NO
SR. NO	Period no	Topic/Unit	Details		Instruction Reference	Additional study
1	1-8	Introduction to Power plant	Introduction to Power plant: Introduction to power plant; Indian Energy scenario in India; Location of power plant; Choice of Power plant; Classification of power plants.		1. Power plant Engineering-P.K. Nag 4th edition, Tata McGraw Hill Education, 2014.	1. Power plant Engineering—Frederick T. Morse, Litton Educational Publishing Inc. 1953. 2. A Course in Power Plant Engineering—Subhash C. Arora, S. Domakundwar, Dhanpat Rai, 1984. 3. Power Plant Engineering—P.C. Sharma, S.K. Kataria & sons, 2009. 4. Power System Engineering—R.K. Rajput, Firewall Media, 2006.
2	9-16	Economics of power plant:	Economics of power plant: Terminology used in power plant: Peak load, Base load factor (Introduction only); Various factor affecting the operation of power plant; Methods of meeting the fluctuating load in power plant; Performance and operating characteristics of power plant. (Theoretical concept only)			
3	17-28	Applied mechanical measurements Miscellaneous measurements	Hydro power plant: Introduction to Hydroelectric power plant; Rainfall, Runoff and its measurement, Hydrograph, flow duration curve; Selection of sites for hydroelectric power plant; General layout of Hydroelectric power plant and its working; Classification of the Plant- Run off river plant, storage river plant, pumped storage plant; Advantages and disadvantages of hydroelectric power plant.			
4	29-40	Diesel and Gas turbine plant; Nuclear power plant:	Diesel and Gas turbine plant: The layout of diesel power plant; Components and the working of diesel power plant; Advantages and disadvantages of diesel power plant; Gas turbine power Plant-Schematic diagram, components and its working; Combined cycle power generation- Combined gas and steam turbine power plant operation (only flow diagram). Nuclear power plant: Introduction; Nuclear Power-Radio activity-Radioactive charge-types of reactions; Working of a nuclear power plant; Thermal fission Reactors- PWR, BWR and gas cooled reactors; Advantages and Disadvantages of Nuclear power plant.			
5	40-48	Environmental impact of Power plant; Power plant safety:	Environmental impact of Power plant: Social and Economical issues of power plant; Green house effect; Acid precipitation-Acid rain, Acid snow, Dry deposition, Acid fog; Air, water, Thermal pollution from power plants; Radiations from nuclear power plant effluents. Power plant safety: Plant safety concept; Safety policy to be observed in power plants; Safety practices to be observed in boiler operation; Safety in oil handling system; Safety in Chemical handling system; Statutory provision related to boiler operation.			

Approved	Sign HOD/PGC

*S. Kumar
Subject teacher*

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