

GOVERNMENT POLYTECHNIC JAJPUR

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DEPARTMENT OF MECHANICAL ENGG.

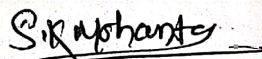
LESSON PLAN (2026-27)

Discipline: MECHANICAL	SEMESTER: 5TH	Name of the Teaching faculty: SUSHANTA KUMAR MOHANTA	
SUBJECT: PPE (TH4-A)	No of Days/Week	Semester starts from Date: 01/07/2026 To 05/11/2026	
		No of weeks: 15	
1st	1st	UNIT- I Introduction to Power plant	
		Introduction to power plant	
	2nd	Indian Energy scenario in India	
	3rd	Location of power plant;	
2nd	1st	Choice of Power plant;	
	2nd	Classification of power plants,	
	3rd	Layout of thermal power plant	
3rd	1st	UNIT- II Economics of power plant:	
		Terminology used in power plant: Peak load, Base load,	
	2nd	Load factor, Load curve;	
	3rd	Various factor affecting the operation of power plant;	
4th	1st	Methods of meeting the fluctuating load in power plant;	
	2nd	Load sharing-	
	3rd	cost of power-tariff methods;	
5th	1st	Performance and operating	
	2nd	characteristics of power plant.	
	3rd	UNIT- III Hydro power plant:	
		Introduction to Hydroelectric power plant;	
6th	1st	Rainfall, Runoff and its measurement	
	2nd	Hydrograph, flow duration curve;	
		Selection of sites for hydroelectric power plant	
	3rd	General layout of Hydroelectric power plant and its working;	
7th	1st	Classification of the Plant-Run off river plant, storage river plant,	
	2nd	pumped storage plant;	
	3rd	Advantages and	
8th	1st	disadvantages of hydroelectric power plant	
	2nd	UNIT- IV Diesel and Gas turbine plant:	
		The layout of diesel power plant;	
	3rd	<i>Components and the working of diesel power plant;</i>	
9th	1st	Advantages and disadvantages of diesel power plant	
	2nd	Gas turbine power Plant- Schematic diagram	
		components and its working; Combined cycle power generation	
	3rd	Combined gas and steam turbine power plant operation (only flow diagram)	
10th	1st	Nuclear power plant:	
		Introduction; Nuclear Power-Radio activity-Radioactive charge-	
	2nd	types of reactions	
	3rd	Working of a nuclear power plant;	
	1st	Thermal fission Reactors- PWR, BWR	

11th	2nd	gas cooled reactors
	3rd	<i>Advantages and Disadvantages of Nuclear power plant</i>
12th	1st	UNIT- V Environmental impact of Power plant: Social and Economical issues of power plant
	2nd	Green house effect; Acid precipitation
	3rd	Acid rain, Acid snow, Dry deposition
13th	1st	Acid fog; Air, water, Thermal pollution from power plants
	2nd	Radiations from nuclear power plant effluents
	3rd	<i>Power plant safety: Plant safety concept</i>
14th	1st	Safety policy to be observed in power plants
	2nd	Safety practices to be observed in boiler operation
	3rd	Safety in oil handling system;
15th	1st	Safety in Chemical handling system
	2nd	<i>Statutory provision related to boiler operation</i>
	3rd	<i>Discussion on Previous year question paper</i>

REFERENCES:

1. Power plant Engineering-P.K. Nag 4th edition, Tata McGraw Hill Education, 2014.
2. Power plant Engineering – Frederick T. Morse, Litton Educational Publishing Inc. 1953.
3. A Course in Power Plant Engineering – Subhash C. Arora, S. Domakundwar, Dhanpat Rai, 1984.
4. Power Plant Engineering – P.C. Sharma, S.K. Kataria & sons, 2009.
5. Power System Engineering – R.K. Rajput, Firewall Media, 2006.


Signature of Faculty