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Kharghar, Navi Mumbai - 410 210.

DEPARTMENT OF MECHANICAL ENGINEERING

VISION

"To incorporate technical & professional skills in Mechanical Engineers to fulfill industrial & social needs".

MISSION

- *To educate, guide, and mentor the students for academic excellence*
- *To develop technical skills and discipline among the students as per the requirement of the industry.*
- *To impart ethics & social values by arranging social activities.*

Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 1 **Course Outcome: 505.1**

Topic Name :- Introduction to Power Plant

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1. What are the types of Power Plant?
2. What are the limitations of Diesel Power Plants?
3. Give detailed classification of hydroelectric power plants.
4. Explain Diesel power plant with a diagram and list its advantages, disadvantages and applications.
5. Explain Hydroelectric power plant with a diagram and list its advantages, disadvantages and applications.
6. What are the factors that are considered while selecting the power plant?
7. Write in brief Maintenance of Diesel and Hydroelectric power plants

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Date of Submission :-

Assign By :- Mr. Rahul Gondhali

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Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 2 **Course Outcome: 505.2**

Topic Name :- High Pressure Boilers

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1. Give detailed classification of boilers.
2. Draw and explain construction and working of Lamont boiler with its advantages and disadvantages.
3. Explain Fluidised bed combustion (FBC) boiler with its needs, types and advantages over other types of boilers.
4. Explain Benson boiler in detail.

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Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 3 **Course Outcome: 505.3**

Topic Name :- Steam and Gas Power Plants

1. List components, advantages and disadvantages of Steam power plant
2. Explain Electrostatic precipitators.
3. Explain Open and Close cycle constant pressure gas turbine power plant.
4. List and explain major components of Gas power plant with diagram.
5. Explain Intercooling Method to improve the thermal efficiency of a gas turbine plant.
6. Write maintenance procedure for major components of steam and gas power plant.
7. What are the advantages of a Gas turbine power plant over other types of power plants.

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Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 4 **Course Outcome: 505.4**

Topic Name :- Waste Heat Recovery and Cogeneration and Trigeneration

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1. State the application of gas turbine power plant?
2. State the methods to improve thermal efficiency of gas turbines? Explain any one method?
3. State the function of the combustion chamber, inter coolers, regenerators and fuel injection system in gas turbine power plant?
4. Explain the working of gas turbine power plant with the help of a schematic diagram?
5. Difference between gas turbine and steam turbine? 6. State the main components of gas turbine plants? 7. Why regenerator is used in gas turbine power plant?

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Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 5 **Course Outcome: 505.5**

Topic Name :- Nuclear Power Plants

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1. Give advantages and disadvantages of trigeneration power plant?
2. Define trigeneration and waste heat?
3. Explain the meaning of high grade and low-grade waste heat?
4. State the working principle of cogeneration?
5. Explain the difference between topping cycle and bottoming cycle?
6. Enlist the applications of waste heat recovery?
7. Explain the use of waste heat recovery in case of green houses?
8. Explain the benefits of waste heat recovery?

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Subject Name: Power Plant Engineering (22566) **Date :-**

Assignment No :- 6 **Course Outcome: 505.6**

Topic Name :- Economic Analysis of Power Plant

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1. Define average load and peak load?
2. Define Plant capacity factor and Plant use factor?
3. Define load factor, diversity factor and maximum demand. Give their mathematical expressions?
4. A 60 MW power station has an annual peak load of 50 MW. The power station supplies loads having maximum demands of 20 MW, 17 MW. 10 MW and 9 MW The annual load factor is 0.45. Find (i) Average load (ii) Demand factor (iii) Diversity factor
5. A power station has two 60 MW units each running for 7000 hours a year and one 30 MW unit running for 1500 hours a year. The energy produced per year is 700 x 10^6 kWh Calculate (1) Plant load factor (2) Plant use factor 6. 06. The maximum load on a thermal power plant of 70 MW capacity is 55 MW at an annual load factor of 60%. The coal consumption is 0.96 kg per unit of energy generated and the cost is? 2 per kg. Find the annual revenue earned, if the electrical energy is sold at 25 per kWh

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Date of Submission :-

Assign By :- Mr. Rahul Gondhali