

GOVERNMENT POLYTECHNIC, NUAPADA

Academic Lesson Plan for Summer semester- 2023(S)
FROM DT. 16-01-2024 TO 26-04-2024

Name of the teaching faculty: Er. Siddhant Singh Babu
Semester: 4th
No. of periods per week: 4
End semester exam: 80
Total Marks: 100

Department: Mechanical Engineering
Subject: Thermal Engineering II
Total Periods: 60
Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	About IC Engine performance
2.		2 nd	Explain types of efficiency
3.		3 rd	Do
4.		4 th	Do
5.	2 nd	1 st	Define Air & Fuel ratio, CV
6.		2 nd	Some Problem solved
7.		3 rd	Do
8.		4 th	Do
9.	3 rd	1 st	About Air compressor
10.		2 nd	Explain functions of compressor & industrial use.
11.		3 rd	Classification of air compressor & operation.
12.		4 th	Do
13.	4 th	1 st	Explain the parts and working principle of reciprocating Air compressor.
14.		2 nd	Do
15.		3 rd	Explain the terminology of reciprocating compressor.
16.		4 th	Explain working Principal of single stage Reciprocating Compressor .
17.	5 th	1 st	Do
18.		2 nd	Explain working Principal of Multistage stage Reciprocating Compressor .
19.		3 rd	Solve simple problems
20.		4 th	Do
21.	6 th	1 st	About Steam & Difference between gas & vapours.
22.		2 nd	Formation of steam
23.		3 rd	Representation on P-V, T-S, H-S, & T-H diagram.
24.		4 th	Do
25.	7 th	1 st	Properties of Steam & Terms
26.		2 nd	Do
27.		3 rd	Use of steam table & mollier chart for finding unknown properties.
28.		4 th	Do
29.	8 th	1 st	Non flow & flow process of vapour.
30.		2 nd	P-V, T-S & H-S, diagram.
31.		3 rd	Solve simple problems
32.		4 th	Do
33.	9 th	1 st	About Boiler & Classification
34.		2 nd	Do

35.		3 rd	Important terms for Boiler.
36.		4 th	Comparison between fire tube & Water tube Boiler
37.	10 th	1 st	Description & working of common boilers.
38.		2 nd	Do
39.		3 rd	Do
40.		4 th	About Boiler Draught system
41.	11 th	1 st	Description of Boiler mountings & accessories.
42.		2 nd	Do
43.		3 rd	Do
44.		4 th	Do
45.	12 th	1 st	About Vapour Power Cycle/ Steam Power Cycle
46.		2 nd	Explain Carnot cycle with vapour.
47.		3 rd	Do
48.		4 th	Explain Rankine Cycle.
49.	13 th	1 st	Do
50.		2 nd	Do
51.		3 rd	Solve Some Problem
52.		4 th	Do
53.	14 th	1 st	Modes of Heat Transfer.
54.		2 nd	Fourier law of heat conduction and thermal conductivity.
55.		3 rd	Newton's laws of cooling.
56.		4 th	Explain Radiation heat transfer.
57.	15 th	1 st	Do
58.		2 nd	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility
59.		3 rd	Do
60.		4 th	Do

The lesson plan prepared by the concerned faculty

Er. Siddhant Singh Babu

GF, MECHANICAL DEPARTMENT

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FROM DT. 16-01-2024 TO 26-04-2024

Name of the teaching faculty: Er. Sidhant Singh Babu

Department: Mechanical Engineering

Semester: 6th

Subject: Power Station Engineering Lab

No. of periods per week: 4

Total Periods: 60

End semester exam: 50

Sessional: 25

Total Marks: 75

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	To study the modern steam power plant with model.
2.		2 nd	Do
3.		3 rd	Do
4.		4 th	Do
5.	2 nd	1 st	Do
6.		2 nd	Do
7.		3 rd	To determine the various efficiencies of steam turbine.
8.		4 th	Do
9.	3 rd	1 st	Do
10.		2 nd	Do
11.		3 rd	Do
12.		4 th	Do
13.	4 th	1 st	Do
14.		2 nd	Do
15.		3 rd	To study the cooling tower.
16.		4 th	Do
17.	5 th	1 st	Do
18.		2 nd	Do
19.		3 rd	Do
20.		4 th	Do
21.	6 th	1 st	Do
22.		2 nd	Do
23.		3 rd	Study of jet condenser
24.		4 th	Do
25.	7 th	1 st	Do
26.		2 nd	Do
27.		3 rd	Do
28.		4 th	Do
29.	8 th	1 st	Do
30.		2 nd	Do
31.		3 rd	Study of De-level turbine
32.		4 th	Do
33.	9 th	1 st	Do
34.		2 nd	Do
35.		3 rd	Do

36.		4 th	Do
37.	10 th	1 st	To study the spring loaded safety valve.
38.		2 nd	Do
39.		3 rd	Do
40.		4 th	Do
41.	11 th	1 st	Do
42.		2 nd	Do
43.		3 rd	To study the steam generators (boilers)models.
44.		4 th	Lancashire boiler
45.	12 th	1 st	Do
46.		2 nd	Do
47.		3 rd	Do
48.		4 th	Do
49.	13 th	1 st	Cornish boiler
50.		2 nd	Do
51.		3 rd	Do
52.		4 th	Do
53.	14 th	1 st	Babcock & Wilcox Boiler
54.		2 nd	Do
55.		3 rd	Do
56.		4 th	Do
57.	15 th	1 st	Vertical water tube boiler.
58.		2 nd	Do
59.		3 rd	Do
60.		4 th	Do

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Department: Mechanical Engineering
Subject: Power Station Engineering
Total Periods: 60
Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	About Power Station Engineering
2.		2 nd	Describe sources of energy.
3.		3 rd	Do
4.		4 th	Explain concept of Central and Captive power station.
5.	2 nd	1 st	Classify power plants.
6.		2 nd	Layout of steam power stations.
7.		3 rd	Explain about carnotvapour power cycle
8.		4 th	Do
9.	3 rd	1 st	Explain about Rankine vapour power cycle
10.		2 nd	Do
11.		3 rd	Do
12.		4 th	Solved Simple Problems.
13.	4 th	1 st	Do
14.		2 nd	Do
15.		3 rd	List of thermal power stations in the state with their capacities.
16.		4 th	About Boiler Accessories
17.	5 th	1 st	Do
18.		2 nd	Do
19.		3 rd	Do
20.		4 th	Explain Boiler Draught System
21.	6 th	1 st	About Steam Prime Mover
22.		2 nd	Do
23.		3 rd	About Condenser
24.		4 th	Do
25.	7 th	1 st	Selection of site for thermal power stations.
26.		2 nd	About Nuclear Power Station
27.		3 rd	Classify nuclear fuel
28.		4 th	Explain fusion and fission reaction.
29.	8 th	1 st	Explain working of nuclear power plants with block diagram
30.		2 nd	Explain the working and construction of nuclear reactor
31.		3 rd	Do
32.		4 th	Do
33.	9 th	1 st	Compare the nuclear and thermal plants.
34.		2 nd	Explain the disposal of nuclear waste
35.		3 rd	Selection of site for nuclear power stations & It list of Presnt
36.		4 th	About Diesel Electric Power Station

37.	10 th	1 st	State the advantages and disadvantages of diesel electric power stations.
38.		2 nd	Explain briefly different systems of diesel electric power stations
39.		3 rd	Do
40.		4 th	Do
41.	11 th	1 st	Do
42.		2 nd	Do
43.		3 rd	Selection of site for diesel electric power stations.
44.		4 th	Performance and thermal efficiency of diesel electric power stations
45.	12 th	1 st	Do
46.		2 nd	About Gas Turbine Power Station
47.		3 rd	Selection of site & Fuels for gas turbine stations.
48.		4 th	Elements of simple gas turbine power plants
49.	13 th	1 st	Do
50.		2 nd	Merits, demerits and application of gas turbine power plants.
51.		3 rd	About Hydel Power Station
52.		4 th	State advantages and disadvantages of hydroelectric power plant.
53.	14 th	1 st	Classification of hydroelectric Power Station
54.		2 nd	explain the general arrangement of storage type hydroelectric project.
55.		3 rd	explain its operation.
56.		4 th	Do
57.	15 th	1 st	List of hydro power stations with their capacities and number of units in the state.
58.		2 nd	Selection of site of hydel power plant.
59.		3 rd	Types of turbines and generation used.
60.		4 th	Solve simple problems

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