

**GOVERNMENT POLYTECHNIC, NUAPADA**  
**Academic Lesson Plan for Summer semester- 2024-25**

Name of the teaching faculty: Er. Sidhanth Singh Babu  
 Semester: 6th  
 No. of periods per week: 4  
 End semester exam: 80  
 Total Marks : 100

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

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	About Power Station Engineering
2.		2 <sup>nd</sup>	Describe sources of energy.
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	Explain concept of Central and Captive power station.
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Classify power plants.
6.		2 <sup>nd</sup>	Layout of steam power stations.
7.		3 <sup>rd</sup>	Explain about Carnot vapour power cycle
8.		4 <sup>th</sup>	Do
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Explain about Rankine vapour power cycle
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	Do
12.		4 <sup>th</sup>	Solved Simple Problems.
13.	4 <sup>th</sup>	1 <sup>st</sup>	Do
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	List of thermal power stations in the state with their capacities.
16.		4 <sup>th</sup>	About Boiler Accessories
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Do
20.		4 <sup>th</sup>	Explain Boiler Draught System
21.	6 <sup>th</sup>	1 <sup>st</sup>	About Steam Prime Mover
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	About Condenser
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Selection of site for thermal power stations.
26.		2 <sup>nd</sup>	About Nuclear Power Station
27.		3 <sup>rd</sup>	Classify nuclear fuel
28.		4 <sup>th</sup>	Explain fusion and fission reaction.
29.	8 <sup>th</sup>	1 <sup>st</sup>	Explain working of nuclear power plants with block diagram
30.		2 <sup>nd</sup>	Explain the working and construction of nuclear reactor
31.		3 <sup>rd</sup>	Do
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Compare the nuclear and thermal plants.
34.		2 <sup>nd</sup>	Explain the disposal of nuclear waste
35.		3 <sup>rd</sup>	Selection of site for nuclear power stations & Its list of Present
36.		4 <sup>th</sup>	About Diesel Electric Power Station
37.	10 <sup>th</sup>	1 <sup>st</sup>	State the advantages and disadvantages of diesel electric power stations.
38.		2 <sup>nd</sup>	Explain briefly different systems of diesel electric power stations
39.		3 <sup>rd</sup>	Do
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Do

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

The lesson plan prepared by the concerned faculty

*S.S. Babu*

Sidhant Singh Babu

GF, MECHANICAL DEPARTMENT

**GOVERNMENT POLYTECHNIC, NUAPADA**  
Academic Lesson Plan for Summer semester- 2024-25

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 <sup>st</sup>	1 <sup>st</sup>	About IC Engine performance
2.		2 <sup>nd</sup>	Explain types of efficiency
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Define Air & Fuel ratio, CV
6.		2 <sup>nd</sup>	Some Problem solved
7.		3 <sup>rd</sup>	Do
8.		4 <sup>th</sup>	Do
9.	3 <sup>rd</sup>	1 <sup>st</sup>	About Air compressor
10.		2 <sup>nd</sup>	Explain functions of compressor & industrial use.
11.		3 <sup>rd</sup>	Classification of air compressor & operation.
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Explain the parts and working principle of reciprocating Air compressor.
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Explain the terminology of reciprocating compressor.
16.		4 <sup>th</sup>	Explain working Principal of single stage Reciprocating Compressor .
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Explain working Principal of Multistage stage Reciprocating Compressor .
19.		3 <sup>rd</sup>	Solve simple problems
20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	About Steam & Difference between gas & vapours.
22.		2 <sup>nd</sup>	Formation of steam
23.		3 <sup>rd</sup>	Representation on P-V, T-S, H-S, & T-H diagram.
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Properties of Steam & Terms
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Use of steam table & mollier chart for finding unknown properties.
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Non flow & flow process of vapour.
30.		2 <sup>nd</sup>	P-V, T-S & H-S, diagram.
31.		3 <sup>rd</sup>	Solve simple problems
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	About Boiler & Classification
34.		2 <sup>nd</sup>	Do
35.		3 <sup>rd</sup>	Important terms for Boiler.
36.		4 <sup>th</sup>	Comparison between fire tube & Water tube Boiler
37.	10 <sup>th</sup>	1 <sup>st</sup>	Description & working of common boilers.
38.		2 <sup>nd</sup>	Do

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

The lesson plan prepared by the concerned faculty

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**GOVERNMENT POLYTECHNIC, NUAPADA**  
**Academic Lesson Plan for Summer semester- 2024-25**

Name of the teaching faculty: Er. Siddhant 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 <sup>st</sup>	1 <sup>st</sup>	To study the modern steam power plant with model.	
2.		2 <sup>nd</sup>		Do
3.		3 <sup>rd</sup>		Do
4.		4 <sup>th</sup>		Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	To determine the various efficiencies of steam turbine.	
6.		2 <sup>nd</sup>		Do
7.		3 <sup>rd</sup>		Do
8.		4 <sup>th</sup>		Do
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Do	
10.		2 <sup>nd</sup>		Do
11.		3 <sup>rd</sup>		Do
12.		4 <sup>th</sup>		Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	To study the cooling tower.	
14.		2 <sup>nd</sup>		Do
15.		3 <sup>rd</sup>		Do
16.		4 <sup>th</sup>		Do
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do	
18.		2 <sup>nd</sup>		Do
19.		3 <sup>rd</sup>		Do
20.		4 <sup>th</sup>		Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Study of jet condenser	
22.		2 <sup>nd</sup>		Do
23.		3 <sup>rd</sup>		Do
24.		4 <sup>th</sup>		Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Do	
26.		2 <sup>nd</sup>		Do
27.		3 <sup>rd</sup>		Do
28.		4 <sup>th</sup>		Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Study of De-level turbine	
30.		2 <sup>nd</sup>		Do
31.		3 <sup>rd</sup>		Do
32.		4 <sup>th</sup>		Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do	
34.		2 <sup>nd</sup>		Do
35.		3 <sup>rd</sup>		Do
36.		4 <sup>th</sup>		Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	To study the spring loaded safety valve.	
38.		2 <sup>nd</sup>		Do
39.		3 <sup>rd</sup>		Do

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

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Name of the teaching faculty: Er. Siddhant Singh Babu

Department: Mechanical Engineering

Semester: 6th

Subject: Automobile Engineering Lab

No. of periods per week: 4

Total Periods: 60

End semester exam: 50

Sessional: 50

Total Marks: 100

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Study of Automobile chassis.
2.		2 <sup>nd</sup>	Do
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Do
6.		2 <sup>nd</sup>	Do
7.		3 <sup>rd</sup>	Do
8.		4 <sup>th</sup>	Study the differential mechanism of the Tractor.
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Do
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	Do
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Do
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Do
16.		4 <sup>th</sup>	Study the hydraulic braking system of automobile.
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Do
20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Study the cut section model of carburetorsolex typeand maruti car type.
25.	7 <sup>th</sup>	1 <sup>st</sup>	Do
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Do
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Do
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	Do
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Study the fuel pump cut section model.
34.		2 <sup>nd</sup>	Do
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Do
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Do

40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Study the actual cut section of gear box.
42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Do
44.		4 <sup>th</sup>	Do
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Do
50.		2 <sup>nd</sup>	Study of actual car engine.
51.		3 <sup>rd</sup>	Do
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Do
56.		4 <sup>th</sup>	Do
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Do

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