

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Summer semester- 2022

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

Department: Mechanical Engineering
Subject: Industrial Engineering &

Total Periods: 60
Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	About Industrial Engineering & Management
2.		2 nd	Selection of Site of Industry.
3.		3 rd	Define plant layout.
4.		4 th	Describe the objective and principles of plant layout.
5.	2 nd	1 st	Explain Process Layout, Product Layout and Combination Layout.
6.		2 nd	Do
7.		3 rd	Techniques to improve layout.
8.		4 th	Principles of material handling equipment.
9.	3 rd	1 st	Describe Plant maintenance.
10.		2 nd	Do
11.		3 rd	Introduction to Operations Research and its applications.
12.		4 th	Do
13.	4 th	1 st	Define LPP
14.		2 nd	Solution of L.P.P. by graphical method.
15.		3 rd	Evaluation of Project completion time by Critical Path Method and PERT
16.		4 th	Do
17.	5 th	1 st	Do
18.		2 nd	Explain about features of PERT W.R.T CPM
19.		3 rd	Solve some numerical
20.		4 th	DO
21.	6 th	1 st	Classification of inventory.
22.		2 nd	Objective of inventory control.
23.		3 rd	Describe the functions of inventories.
24.		4 th	Benefits of inventory control.
25.	7 th	1 st	Costs associated with inventory
26.		2 nd	Terminology in inventory control
27.		3 rd	Derive economic order quantity for Basic model.
28.		4 th	Solve numerical.
29.	8 th	1 st	Define and Explain ABC analysis.
30.		2 nd	DO
31.		3 rd	Define Inspection and Quality control.
32.		4 th	Describe planning of inspection.
33.	9 th	1 st	Describe types of inspection.

34.		2 nd	Advantages and disadvantages of quality control.
35.		3 rd	Study of factors influencing the quality of manufacture.
36.		4 th	Explain the Concept of statistical quality control,
37.	10 th	1 st	Control charts(X, R,P and C - charts).
38.		2 nd	Methods of attributes.
39.		3 rd	Concept of ISO 9001-2008.
40.		4 th	Quality management system,
41.	11 th	1 st	Registration /certification procedure.
42.		2 nd	Benefits of ISO to the organization.
43.		3 rd	JIT, Six sigma,7S, Lean manufacturing
44.		4 th	DO
45.	12 th	1 st	Solve related problems.
46.		2 nd	Introduction
47.		3 rd	Major functions of production planning and control
48.		4 th	DO
49.	13 th	1 st	Methods of forecasting
50.		2 nd	DO
51.		3 rd	Routing
52.		4 th	Scheduling
53.	14 th	1 st	Dispatching
54.		2 nd	Controlling
55.		3 rd	Types of production
56.		4 th	Mass production
57.	15 th	1 st	Batch production
58.		2 nd	Job order production
59.		3 rd	Principles of product and process planning.
60.		4 th	DO

The lesson plan prepared by the concerned faculty

RAJENDRA MOHANTY

PTGF, MECHANICAL DEPARTMENT

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Summer semester- 2022

Name of the teaching faculty: Er. Amiya Ranjan Patra
Semester: 6th
No. of periods per week: 4
End semester exam: 80
Total Marks : 100

Department: Mechanical Engineering
Subject: Automobile Engg. & Hybrid Vehicles
Total Periods: 60
Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Automobiles: Definition, need and classification:
2.		2 nd	Layout of automobile chassis
3.		3 rd	with major components (Line diagram)
4.		4 th	Clutch System: Need, Types (Single & Multiple)
5.	2 nd	1 st	Working principle with sketch
6.		2 nd	Gear Box: Purpose of gear box, Construction
7.		3 rd	working of a 4 speed gear box
8.		4 th	Concept of automatic gear changing mechanisms
9.	3 rd	1 st	do
10.		2 nd	Propeller shaft: Constructional features
11.		3 rd	Differential: Need, Types
12.		4 th	Working principle
13.	4 th	1 st	Braking systems in automobiles: Need and types
14.		2 nd	Mechanical Brake
15.		3 rd	Hydraulic Brake
16.		4 th	Air Brake, Air assisted Hydraulic Brake
17.	5 th	1 st	Vacuum Brake
18.		2 nd	Describe the Battery ignition
19.		3 rd	Magnet ignition system
20.		4 th	Spark plugs: Purpose, construction and specifications
21.	6 th	1 st	State the common ignition troubles and its remedies
22.		2 nd	Description of the conventional suspension system for Rear and Front axle
23.		3 rd	Do
24.		4 th	Description of independent suspension system used in cars
25.	7 th	1 st	coil spring and tensionbars
26.		2 nd	Constructional features and working of a telescopic shock absorber
27.		3 rd	Do
28.		4 th	Engine cooling: Need and classification
29.	8 th	1 st	Describe defects of cooling and their remedial measures
30.		2 nd	Do
31.		3 rd	Describe the Function of lubrication
32.		4 th	Describe the lubrication System of I.C. engine
33.	9 th	1 st	Do
34.		2 nd	Do

35.		3 rd	Describe Air fuel ratio
36.		4 th	Do
37.	10 th	1 st	Describe Carburetion process for Petrol Engine
38.		2 nd	Do
39.		3 rd	Describe Multipoint fuel injection system for Petrol Engine
40.		4 th	Do
41.	11 th	1 st	working principle of fuel injection system for multi cylinder Engine
42.		2 nd	Filter for Diesel engine
43.		3 rd	working principle of Fuel feed pump
44.		4 th	Fuel Injector for Diesel engine
45.	12 th	1 st	ELECTRIC AND HYBRID VEHICLES
46.		2 nd	Introduction, Social and Environmental importance of Hybrid
47.		3 rd	Description of Electric Vehicles
48.		4 th	operational advantages, present performance
49.	13 th	1 st	applications of Electric Vehicles
50.		2 nd	Battery for Electric Vehicles
51.		3 rd	Do
52.		4 th	Battery for Electric Vehicles, Battery types and fuel cells.
53.	14 th	1 st	Do
54.		2 nd	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel
55.		3 rd	Do
56.		4 th	Do
57.	15 th	1 st	Series configurations; Drive train
58.		2 nd	Do
59.		3 rd	Solar powered vehicles
60.		4 th	Do

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AMIYA RANJAN PATRA

PTGF, MECHANICAL DEPARTMENT

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for summer semester- 2022

Name of the teaching faculty: Er. RajendraMohanty
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 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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PTGF, MECHANICAL DEPARTMENT

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

Department: Mechanical Engineering
Subject: Advance Manufacturing Process
Total Periods: 60
Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Introduction – comparison with traditional machining
2.		2 nd	Ultrasonic Machining: principle, Description of equipment, applications
3.		3 rd	Do
4.		4 th	Described Electric Discharge Machining Process
5.	2 nd	1 st	Do
6.		2 nd	Do
7.		3 rd	Wire cut EDM: Principle, applications
8.		4 th	Do
9.	3 rd	1 st	Do
10.		2 nd	Explained Abrasive Jet Machining & application.
11.		3 rd	Do
12.		4 th	Explained Laser Beam Machining & application.
13.	4 th	1 st	Do
14.		2 nd	Explained Electro Chemical Machining & application.
15.		3 rd	Do
16.		4 th	Explained Plasma Arc Machining & Applications
17.	5 th	1 st	Do
18.		2 nd	Electron Beam Machining
19.		3 rd	Do
20.		4 th	Processing of plastics.
21.	6 th	1 st	Introduction – comparison with traditional machining
22.		2 nd	Ultrasonic Machining: principle, Description of equipment, applications
23.		3 rd	Do
24.		4 th	Described Electric Discharge Machining Process
25.	7 th	1 st	Do
26.		2 nd	Do
27.		3 rd	Wire cut EDM: Principle, applications
28.		4 th	Do
29.	8 th	1 st	Do
30.		2 nd	Explained Abrasive Jet Machining & application.
31.		3 rd	Do
32.		4 th	Explained Laser Beam Machining & application.
33.	9 th	1 st	Do
34.		2 nd	Explained Electro Chemical Machining & application.

35.		3 rd	Do
36.		4 th	Explained Plasma Arc Machining & Applications
37.	10 th	1 st	Do
38.		2 nd	Do
39.		3 rd	Application AM
40.		4 th	Do
41.	11 th	1 st	Web Based Rapid Prototyping Systems
42.		2 nd	Do
43.		3 rd	Concept of FM process, concurrent tool, production tool
44.		4 th	Rapid prototyping process
45.	12 th	1 st	Concept of SPM
46.		2 nd	General elements of SPM
47.		3 rd	Do
48.		4 th	Productivity improvement by SPM
49.	13 th	1 st	Do
50.		2 nd	Principles of SPM design
51.		3 rd	Do
52.		4 th	Types of maintenance
53.	14 th	1 st	Do
54.		2 nd	Types of maintenance, Repair cycle analysis,
55.		3 rd	Repair complexity, Maintenance manual,
56.		4 th	Do
57.	15 th	1 st	Maintenance records, Housekeeping.
58.		2 nd	Introduction to Total Productive Maintenance (TPM).
59.		3 rd	Do
60.		4 th	Do

The lesson plan prepared by the concerned faculty

DIBYAJYOTI PANDA

PTGF, MECHANICAL DEPARTMENT

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Summer semester- 2022

Name of the teaching faculty: Er. AMIYA RANJAN PATRA **Department:** Mechanical Engineering
Semester: 6th **Subject:** Automobile Engineering Lab
No. of periods per week: 4 **Total Periods:** 60
End semester exam: 50 **Sessiona I:** 50
Total Marks: 100

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Study of Automobile chassis.
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	Do
8.		4 th	Study the differential mechanism of the Tractor.
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	Do
16.		4 th	Study the hydraulic braking system of automobile.
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	Do
24.		4 th	Study the cut section model of carburetorsolex typeand maruti car type.
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	Do
32.		4 th	Do

33.	9 th	1 st	Study the fuel pump cut section model.
34.		2 nd	Do
35.		3 rd	Do
36.		4 th	Do
37.	10 th	1 st	Do
38.		2 nd	Do
39.		3 rd	Do
40.		4 th	Do
41.	11 th	1 st	Study the actual cut section of gear box.
42.		2 nd	Do
43.		3 rd	Do
44.		4 th	Do
45.	12 th	1 st	Do
46.		2 nd	Do
47.		3 rd	Do
48.		4 th	Do
49.	13 th	1 st	Do
50.		2 nd	Study of actual car engine.
51.		3 rd	Do
52.		4 th	Do
53.	14 th	1 st	Do
54.		2 nd	Do
55.		3 rd	Do
56.		4 th	Do
57.	15 th	1 st	Do
58.		2 nd	Do
59.		3 rd	Do
60.		4 th	Do

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AMIYA RANJAN PATRA

PTGF, MECHANICAL DEPARTMENT

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Summer semester- 2022

Name of the teaching faculty: Er. Arun Kumar Panigrahi **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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UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
Academic Lesson Plan for Summer semester- 2022

Name of the teaching faculty: Er. RajendraMohanty
Semester: 6th
No. of periods per week: 2
Sessional: 25

Department: Mechanical Engineering
Subject: Life Skill
Total Periods: 30

SL.No.	WEEK	PERIOD	Students Practical Assignment
1.	1 st	2	Analyse SWOT (Strength weakness opportunity & Threats)
2.	2 nd	2	
3.	3 rd	2	True life problem solution Like visit villages and know their different issues
4.	4 th	2	
5.	5 th	2	
6.	6 th	2	Team Work 1. Tree plantation with gardening 2. Blood donation camp 3. Help to poor people
7.	7 th	2	
8.	8 th	2	
9.	9 th	2	
10.	10 th	2	
11.	11 th	2	Mock Interview
12.	12 th	2	
13.	13 th	2	Group Discussion (Global Warming, Pollution, Traffic Rule, Gender Balancing)
14.	14 th	2	Task Management
15.	15 th	2	Prepare a report on overall task

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