

GOVERNMENT POLYTECHNIC, NUAPADA

Academic Lesson Plan for Summer semester- 2024(s)

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

Name of the teaching faculty: Er. Bimbadhar Sahu

Department: Mechanical Engineering

Semester: 4th

Subject: : Theory of Machine and Measurement lab

No. of periods per week: 6

Total Periods: 90

End semester exam: 75

Sessional: 25

Total Marks: 100

Sl. No	Week	Period	Topic to be covered
1	1 st	1 st	Determination of centrifugal force of a governor
2		2 nd	Do
3		3 rd	Do
4		4 th	Do
5		5 th	Do
6		6 th	Do
7	2 nd	1 st	Do
8		2 nd	Do
9		3 rd	Do
10		4 th	Study & demonstration of static balancing apparatus
11		5 th	Do
12		6 th	Do
13	3 rd	1 st	Do
14		2 nd	Do
15		3 rd	Do
16		4 th	Do
17		5 th	Do
18		6 th	Do
19	4 th	1 st	Study & demonstration of journal bearing apparatus
20		2 nd	Do
21		3 rd	Do
22		4 th	Do
23		5 th	Do
24		6 th	Do
25	5 th	1 st	Do
26		2 nd	Do
27		3 rd	Do
28		4 th	Study of different types of Cam and followers
29		5 th	Do
30		6 th	Do
31	6 th	1 st	Do
32		2 nd	Do
33		3 rd	Do
34		4 th	Do
35		5 th	Do
36		6 th	Do
37	7 th	1 st	Study & demonstration of epicyclic gear train.
38		2 nd	Do
39		3 rd	Do
40		4 th	Do
41		5 th	Do
42		6 th	Do
43	8 th	1 st	Do
44		2 nd	Do
45		3 rd	Do

46		4 th	Determination of the thickness of ground M.S flat to an accuracy of 0.02mm using VernierCaliper.
47		5 th	Do
48		6 th	Do
49	9 th	1 st	Do
50		2 nd	Do
51		3 rd	Do
52		4 th	Do
53		5 th	Do
54		6 th	Do
55	10 th	1 st	Determination of diameter of a cylindrical component to an accuracy of 0.01mm using micrometer
56		2 nd	Do
57		3 rd	Do
58		4 th	Do
59		5 th	Do
60		6 th	Do
61	11 th	1 st	Do
62		2 nd	Do
63		3 rd	Do
64		4 th	Determine the heights of gauge blocks or parallel bars to accuracy of 0.02mm using Vernier height gauge.
65		5 th	Do
66		6 th	Do
67	12 th	1 st	Do
68		2 nd	Do
69		3 rd	Do
70		4 th	Do
71		5 th	Do
72		6 th	Do
73	13 th	1 st	Determine the thickness of ground MS plates using slip gauges.
74		2 nd	Do
75		3 rd	Do
76		4 th	Do
77		5 th	Do
78		6 th	Do
79	14 th	1 st	Do
80		2 nd	Do
81		3 rd	Determination of angel of Machined surfaces of components using sin bar with slip gauges
82		4 th	Do
83		5 th	Do
84		6 th	Do
85	15 th	1 st	REVISION
86		2 nd	Do
87		3 rd	Do
88		4 th	Do
89		5 th	Do
90		6 th	Do

The lesson plan prepared by the concerned faculty

Er. Bimbadhar Sahu

Sr. Lecturer, MECHANICAL DEPARTMENT

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

Name of the teaching faculty: Er. Bimbadhar Sahu

Semester: 4th

No. of periods per week: 4

End semester exam: 80

Total Marks : 100

Department: Mechanical Engineering

Subject: Theory of Machine

Total Periods: 60

Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	About Simple Mechanism
2.		2 nd	Link ,kinematic chain, mechanism, machine
3.		3 rd	Inversion, four bar link mechanism and its inversion
4.		4 th	Do
5.	2 nd	1 st	Lower pair and higher pair
6.		2 nd	Do
7.		3 rd	Cam and followers
8.		4 th	Do
9.	3 rd	1 st	Friction between nut and screw for square thread, screw jack
10.		2 nd	Do
11.		3 rd	Bearing and its classification,Description of roller,needleroller&ball bearings.
12.		4 th	Do
13.	4 th	1 st	Torque transmission in flat pivot& conical pivot bearings.
14.		2 nd	Do
15.		3 rd	Flat collar bearing of single and multiple types.
16.		4 th	Torque transmission for single and multiple clutches
17.	5 th	1 st	Do
18.		2 nd	Working of simple frictional brakes
19.		3 rd	Working of Absorption type of dynamometer
20.		4 th	Do
21.	6 th	1 st	Concept of power transmission
22.		2 nd	Type of drives, belt, gear and chain drive.
23.		3 rd	Computation of velocity ratio, length of belts with and without slip
24.		4 th	Ratio of belt tensions, centrifugal tension and initial tension.
25.	7 th	1 st	Power transmitted by the belt
26.		2 nd	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
27.		3 rd	DO
28.		4 th	V-belts and V-belts pulleys
29.	8 th	1 st	Concept of crowning of pulleys.
30.		2 nd	Gear drives and its terminology
31.		3 rd	Gear trains, working principle of simple, compound, reverted and epicyclic gear trains
32.		4 th	Do
33.	9 th	1 st	Function of governor
34.		2 nd	Classification of governor
35.		3 rd	Working of Watt, Porter, Proel and Hartnell governors
36.		4 th	Do
37.	10 th	1 st	Do
38.		2 nd	Conceptual explanation of sensitivity, stability and isochronisms.

39.		3 rd	Do
40.		4 th	Function of flywheel.
41.	11 th	1 st	Comparison between flywheel & governor.
42.		2 nd	Do
43.		3 rd	Fluctuation of energy and coefficient of fluctuation of speed
44.		4 th	Do
45.	12 th	1 st	Concept of static and dynamic balancing
46.		2 nd	Static balancing of rotating parts
47.		3 rd	Do
48.		4 th	Principles of balancing of reciprocating parts
49.	13 th	1 st	Do
50.		2 nd	Causes and effect of unbalance
51.		3 rd	Do
52.		4 th	Difference between static and dynamic balancing
53.	14 th	1 st	Introduction to Vibration and related terms
54.		2 nd	Do
55.		3 rd	Classification of vibration.
56.		4 th	Basic concept of natural, forced & damped vibration
57.	15 th	1 st	Do
58.		2 nd	Torsional and Longitudinal vibration
59.		3 rd	Do
60.		4 th	Causes & remedies of vibration.

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Name of the teaching faculty: Er. Bimbadhar Sahu

Semester: 6th

No. of periods per week: 4

End semester exam: 80

Total Marks : 100

Department: Mechanical Engineering

Subject: Industrial Engineering & Management

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

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BIMBADHAR SAHU

Sr.Lect, MECHANICAL DEPARTMENT