

GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for Summer semester- 2025-26

Name of the teaching faculty: Sri Michael Suveer
 Semester: 6th
 No. of periods per week: 4
 End semester exam: 80
 Total Marks : 100

Department: Mechanical Engineering
 Subject: Industrial Robotics & Automation
 Total Periods: 60
 Class test: 20

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Fundamental of Robotics: Definition, Robot anatomy(parts) and its working.
2.		2 nd	Robot Components: Manipulator, End effector, Construction of Links, Types of Joints.
3.		3 rd	Classification of Robots: Cartesian, Cylindrical, Spherical, Scara, Vertical articulated
4.		4 th	Structural characteristics of robots: Mechanical rigidity, Effects of structure on control work envelope and work volume.
5.	2 nd	1 st	Robot work volumes, comparison
6.		2 nd	Advantages and disadvantages of robots
7.		3 rd	Robotic Drive System and Controller: Actuators- hydraulic, pneumatic
8.		4 th	Electrical drives, Linear actuator, Rotary drives.
9.	3 rd	1 st	AC servo motor, DC servo motor, Stepper motors, Conversion between linear & rotary motion
10.		2 nd	Feedback devices, Potentiometers, Optical encoders, DC tachometers
11.		3 rd	Robot controller, Level of controller, Open & Closed Loop Controller
12.		4 th	Microprocessor based control system, Robot control path, point to point, continuous path control & sensor based path control, controller programming
13.	4 th	1 st	Sensors: Requirements of a sensor
14.		2 nd	Principles & applications of sensors
15.		3 rd	Classification of sensors- Position sensors(Encoders, Resolvers, Piezo Electric)
16.		4 th	Range sensors(Triangulation Principle)
17.	5 th	1 st	Range sensors(Structured lighting approach)
18.		2 nd	Proximity sensing, Force and Torque sensing.
19.		3 rd	Introduction to Machine Vision
20.		4 th	Robot Vision system (scanning and digitizing image data)
21.	6 th	1 st	Image processing and analysis.
22.		2 nd	Cameras (Acquisition of images), Videocon Camera- Working Principle
23.		3 rd	Videocon Camera- Construction, Applications of Robot vision system
24.		4 th	Inspection, Identification, Navigation, Servicing
25.	7 th	1 st	Robot Kinematics and Robot Programming- Introduction
26.		2 nd	Forward Kinematics, Inverse Kinematics & Differences.
27.		3 rd	Forward Kinematics & Reverse Kinematics of Manipulators with two degrees of Freedom(in 2 dimensional)
28.		4 th	Deviations and problems, Teach Pendant programming
29.	8 th	1 st	Lead through programming, Robot programming Languages, VAL programming
30.		2 nd	Motion commands, Sensor commands, End effector commands & Simple programs
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

Michael Suveer
Michael Suveer

GF, MECHANICAL DEPARTMENT

Uday Meher
HOD, Mechanical Dept.



GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for Summer semester- 2025-26

Name of the teaching faculty: Sri Michael Suveer
 Semester: 4th
 No. of periods per week: 3
 End semester exam: 70
 Total Marks : 100

Department: Mechanical Engineering
 Subject: Theory of Machine & Mechanism
 Total Periods: 45
 Class test: 30

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.	2 nd	1 st	Lower pair and higher pair
5.		2 nd	Cam and followers and its classification
6.		3 rd	Follower motions like SHM, uniform velocity
7.	3 rd	1 st	Friction between nut and screw for square thread,
8.		2 nd	screw jack
9.		3 rd	Bearing and its classification, Description of roller, needle-roller & ball bearings.
10.	4 th	1 st	Torque transmission in flat pivot & conical pivot bearings.
11.		2 nd	Flat collar bearing of single and multiple types.
12.		3 rd	Torque transmission for single and multiple clutches
13.	5 th	1 st	Working of simple frictional brakes
14.		2 nd	Working of Absorption type of dynamo meter
15.		3 rd	Concept of power transmission
16.	6 th	1 st	Type of drives, belt, gear and chain drive.
17.		2 nd	Computation of velocity ratio, length of belt drives
18.		3 rd	Concept of slip, Ratio of belt tensions, centrifugal tension and initial tension.
19.	7 th	1 st	Power transmitted by the belt
20.		2 nd	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
21.		3 rd	Solved problems on belt drives
22.	8 th	1 st	V-belts and V-belts pulleys, Concept of crowning of pulleys.
23.		2 nd	Gear drives and its terminology
24.		3 rd	Gear trains, working principle of simple, compound, reverted and epicyclic gear trains
25.	9 th	1 st	Solved problems on gear trains
26.		2 nd	Function of governor and Classification of governor
27.		3 rd	Working of Watt, Porter, Proell and Hartnell governors
28.	10 th	1 st	Solved problems on governors
29.		2 nd	Conceptual explanation of sensitivity, stability and isochronisms.
30.		3 rd	Function of flywheel.
31.	11 th	1 st	Comparison between flywheel & governor.
32.		2 nd	Fluctuation of energy and coefficient of fluctuation of speed
33.		3 rd	Solved problems on flywheel
34.	12 th	1 st	Concept of static and dynamic balancing
35.		2 nd	Static balancing of rotating parts
36.		3 rd	Principles of balancing of reciprocating parts

37.	13 th	1 st	Causes and effect of unbalance
38.		2 nd	Difference between static and dynamic balancing
39.		3 rd	Introduction to Vibration and related terms
40.	14 th	1 st	Classification of vibration.
41.		2 nd	Basic concept of natural, forced & damped vibration
42.		3 rd	Torsional and Longitudinal vibration
43.	15 th	1 st	Causes & remedies of vibration
44.		2 nd	Solved simple numerical on vibrations
45.		3 rd	Previous years questions discussion

The lesson plan prepared by the concerned faculty

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GF, MECHANICAL DEPARTMENT

Madaya Mehrotra
 HOD, Mechanical Engg.

GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for Summer Semester- 2025-26

Name of the teaching faculty: Er. Michael Suveer
 Semester: 4th

Department: Mechanical Engineering
 Subject: TH:3- COMPUTER-INTEGRATED
 MANUFACTURING (CIM)

No. of periods per week: 3

Total Periods: 45

End semester exam: 70

Progressive Assessment: 30

Total Marks : 100

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Concept of Computer Integrated Manufacturing (CIM);
2.		2 nd	do
3.		3 rd	Basic components of CIM;
4.	2 nd	1 st	Distributed database system
5.		2 nd	Distributed communication system
6.		3 rd	do
7.	3 rd	1 st	Computer networks for manufacturing
8.		2 nd	do
9.		3 rd	Future automated factory
10.	4 th	1 st	Social and Economic factors
11.		2 nd	Computer Aided Design (CAD):
12.		3 rd	CAD hardware and software
13.	5 th	1 st	Do
14.		2 nd	Product modelling
15.		3 rd	do
16.	6 th	1 st	Automatic drafting
17.		2 nd	Engineering analysis
18.		3 rd	FEM design review and evaluation;
19.	7 th	1 st	do
20.		2 nd	Group Technology Centre
21.		3 rd	Computer Aided Manufacturing (CAM)
22.	8 th	1 st	Computer assisted NC part programming for plain turning and step turning
23.		2 nd	do
24.		3 rd	do
25.	9 th	1 st	Computer assisted robot programming
26.		2 nd	Computer aided process planning (CAPP)
27.		3 rd	Do
28.	10 th	1 st	Computer aided material requirements planning (MRP)
29.		2 nd	Computer aided production scheduling
30.		3 rd	do
31.	11 th	1 st	Computer aided inspection planning
32.		2 nd	do
33.		3 rd	Computer aided inventory planning
34.	12 th	1 st	do

35.		2 nd	Flexible manufacturing system (FMS);
36.		3 rd	do
37.	13 th	1 st	Concept of flexible manufacturing
38.		2 nd	do
39.		3 rd	Integrating NC machines
40.	14 th	1 st	Robots, AGVs
41.		2 nd	Other NC equipment
42.		3 rd	Computer aided quality control
43.	15 th	1 st	Business functions
44.		2 nd	Computer aided forecasting
45.		3 rd	Office automation

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GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for Summer Semester- 2025-26

Name of the teaching faculty: Er. Michael Suveer
 Semester: 4th
 No. of periods per week: 3
 End semester exam: 70
 Total Marks : 100

Department: Mechanical Engg.
 Subject: TH:5(C)- MECHATRONICS
 Total Periods: 45
 Progressive Assessment: 30

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Introduction to Mechatronics: Mechatronics; Importance of Mechatronics;
2.		2 nd	Systems: Measurement systems
3.		3 rd	Control systems and their types
4.	2 nd	1 st	Closed-loop control System
5.		2 nd	Automatic water level controller
6.		3 rd	Sequential controllers-washing machine
7.	3 rd	1 st	Measurement System terminology: Displacement, Position
8.		2 nd	Proximity Sensors; Velocity and Motion Sensors; Force Sensors
9.		3 rd	Fluid Pressure Sensors; Flow Sensors, Liquid Level Sensors
10.	4 th	1 st	Temperature Sensors; Light Sensors; Selection of Sensors
11.		2 nd	Mechanical Actuation Systems: Types of motion; Freedom and constraints
12.		3 rd	do
13.	5 th	1 st	Loading; Gear Trains; Pawl & Ratchet, Belt & Chain drives; Bearings: Selection, Ball & Roller bearings
14.		2 nd	do
15.		3 rd	Electrical Actuation Systems: Switches & Relays; Solenoids; D.C Motors;
16.	6 rd	1 st	do
17.		2 nd	A.C.Motors; Stepper Motors: Specifications and Control of stepper motors; Servomotors:
18.		3 rd	D.C Servomotor and A.C Servomotor.
19.	7 th	1 st	Pneumatic & Hydraulic Systems: Power supplies; DCV
20.		2 nd	PCV; Cylinders; Rotary actuators
21.		3 rd	Mathematical Model: Introduction to Mathematical model
22.	8 th	1 st	Mechanical System building blocks
23.		2 nd	Electrical System building blocks; Fluid System building blocks
24.		3 rd	Thermal System building blocks. System Model: Engineering Systems: Rotational
25.	9 th	1 st	Translational Systems; Electro-Mechanical System: Hydro-Mechanical System.
26.		2 nd	Input/Output Systems: Interfacing; Input/output ports; Interface requirements: Buffers, Hand-shaking.
27.		3 rd	Polling and interrupts, Serial interfacing; Introduction to PIA; Serial communications interface
28.	10 th	1 st	Example of interfacing of a seven-segment display with a decoder.
29.		2 nd	Programmable Logic Controller (PLC): Definition, Basic block diagram and structure of PLC
30.		3 rd	do

31.	11 th	1 st	Input/Output processing; PLC Programming
32.		2 nd	do
33.		3 rd	Ladder diagram, its logic functions, Latching and Sequencing;
34.	12 th	1 st	do
35.		2 nd	PLC mnemonics; Timers; Internal relays and Counters
36.		3 rd	do
37.	13 th	1 st	Shift registers; Master and Jump Controls
38.		2 nd	Data handling; Analog input/output; Selection of PLC
39.		3 rd	Design Examples & Advanced Applications in Mechatronics: Design process stages; Traditional Vs Mechatronics designs; Possible design solutions
40.	14 th	1 st	Timed switch, Wind-screen wiper motion, Bath room scale; Case studies of Mechatronics systems: A pick-and-place robot
41.		2 nd	Car park barrier, Car engine management system, Automatic Camera and Automatic Washing Machine only
42.		3 rd	Sensors for Condition Monitoring Systems of Production Systems: Examples of Monitoring methods: Vibration monitoring, Temperature monitoring
43.	15 th	1 st	Wear behavior monitoring; Mechatronics control in automated manufacturing: Monitoring of Manufacturing processes, On-line quality monitoring,
44.		2 nd	Model based systems, Hardware in-the-loop simulation
45.		3 rd	Supervisory control in manufacturing inspection, Integration of heterogeneous systems

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GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for ~~1st~~ semester- 2025-26

Name of the teaching faculty: Sri Michael Suveer

Department: Mechanical Engineering

Semester: 2nd

Subject: Engineering Mechanics

No. of periods per week: 4

Total Periods: 60

End semester exam: 70

Class test: 30

Total Marks: 100

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Fundamentals of Engineering Mechanics
2.		2 nd	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies
3.		3 rd	Definition, Classification of force system according to plane & line of action. Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition.
4.		4 th	Action & Reaction Forces & concept of Free Body Diagram
5.	2 nd	1 st	Definition, Method of Resolution, Types of Component forces, Perpendicular components & non-perpendicular components.
6.		2 nd	Solved problems
7.		3 rd	Definition, Resultant Force, Method of composition of forces
8.		4 th	Analytical Method such as Law of Parallelogram of forces & method of resolution
9.	3 rd	1 st	Graphical Method. Introduction, Space diagram, Vector diagram,
10.		2 nd	Polygon law of forces and its explanation
11.		3 rd	Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method
12.		4 th	Moment of Force. Definition, Geometrical meaning of moment of a force, measurement of moment of a force & its S.I units. Law of moments,
13.	4 th	1 st	Classification of moments according to direction of rotation, sign convention,
14.		2 nd	Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple, properties of couple
15.		3 rd	Definition, condition of equilibrium,
16.		4 th	Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent
17.	5 th	1 st	Free Body Diagram.
18.		2 nd	Lami's Theorem with Statement
19.		3 rd	Application for solving various engineering problems
20.		4 th	Types of beams and supports
21.	6 th	1 st	Load acting on beams like vertical, point, inclined loads
22.		2 nd	Beam reaction calculation for cantilever, simply supported
23.		3 rd	Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction
24.		4 th	Do
25.	7 th	1 st	Angle of Friction & Repose, Laws of Friction,
26.		2 nd	Advantages & Disadvantages of Friction
27.		3 rd	Equilibrium of bodies on level plane – Force applied on horizontal plane
28.		4 th	Force applied on inclined plane (up & down)

29.	8 th	1 st	Solved problems
30.		2 nd	Ladder, Friction
31.		3 rd	Wedge friction
32.		4 th	Solved problems
33.	9 th	1 st	Centroid – Definition, Moment of an area about an axis
34.		2 nd	Centroid of geometrical figures such as squares, rectangles
35.		3 rd	Centroid of geometrical figures triangles, circles
36.		4 th	Centroid of composite figures
37.	10 th	1 st	Centre of gravity of simple solids like cube, cuboid, cone, cylinder
38.		2 nd	Sphere and hemisphere
39.		3 rd	Centre of gravity of composite solids
40.		4 th	Formula explanations of standard cases
41.	11 th	1 st	Difference between C.G and CENTROID
42.		2 nd	Concept on mass moment of inertia
43.		3 rd	Solved problems on C.G
44.		4 th	Solved problems on Centroid
45.	12 th	1 st	Definition of simple machine, velocity ratio of simple and compound gear train
46.		2 nd	explain simple & compound lifting machine,
47.		3 rd	Define M.A, V.R. & Efficiency State the relation between them
48.		4 th	Explain simple & compound lifting machine,
49.	13 th	1 st	State Law of Machine, Reversibility of Machine, Self Locking Machine.
50.		2 nd	Ideal machine, friction in machines
51.		3 rd	Condition explanation of self locking and overhauling
52.		4 th	Study of simple machines – simple axle & wheel,
53.	14 th	1 st	single purchase crab winch & double purchase crab winch
54.		2 nd	Study of Worm & Worm Wheel and Screw Jack
55.		3 rd	Weston's differential pulley block, geared pulley block
56.		4 th	Solved Problems part 1
57.	15 th	1 st	Solved problems part 2
58.		2 nd	Revision of topics
59.		3 rd	Previous years question discussion
60.		4 th	Previous years question discussion

The lesson plan prepared by the concerned faculty

Michael Suveer
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GF, MECHANICAL DEPARTMENT

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GOVERNMENT POLYTECHNIC, NUAPADA

Academic Lesson Plan for Summer Semester- 2025-26

Name of the teaching faculty: Sri Michael Suveer Department: Mechanical Engineering

Semester: 4th

Subject: Thermal Engg-II Lab

No. of periods per week: 4

Total Periods: 60

End semester exam: 15

Total Marks: 50

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Study of high pressure boiler with model (1)Cochran Boiler
2.		2 nd	(2)Babcock & Wilcox boiler
3.		3 rd	(4) Lancashire Boiler
4.		4 th	Do
5.	2 nd	1 st	Study of boiler mountings
6.		2 nd	Do
7.		3 rd	Study of boiler accessories
8.		4 th	Do
9.	3 rd	1 st	Record Checking and Viva voce test
10.		2 nd	Do
11.		3 rd	Conduct Morse test to determine the indicated power of individual cylinders
12.		4 th	Do
13.	4 th	1 st	Result Analysis
14.		2 nd	Do
15.		3 rd	Record Checking and Viva voce test
16.		4 th	Do
17.	5 th	1 st	Conduct Performance test on 4-S CI/SI engine.
18.		2 nd	Do
19.		3 rd	Explanation of CI AND SI engine
20.		4 th	Performance Analysis
21.	6 th	1 st	Do
22.		2 nd	Record Checking and Viva voce test
23.		3 rd	Do
24.		4 th	Conduct Economical speed test on 4-S CI/SI engine.
25.	7 th	1 st	Do
26.		2 nd	Record Checking and Viva voce test
27.		3 rd	Do
28.		4 th	Leak detection of refrigeration equipment
29.	8 th	1 st	Do

30.		2 nd	Record Checking and Viva voce test
31.		3 rd	Do
32.		4 th	Conduct performance test on A/C test rig to determine COP of the refrigerator
33.	9 th	1 st	Do
34.		2 nd	Record Checking and Viva voce test
35.		3 rd	Do
36.		4 th	Conduct performance test on VCR test rig to determine COP of the refrigerator
37.	10 th	1 st	Do
38.		2 nd	Record Checking and Viva voce test
39.		3 rd	Do
40.		4 th	Conduct performance test on multi stage reciprocating compressor
41.	11 th	1 st	Do
42.		2 nd	Record Checking and Viva voce test
43.		3 rd	Do
44.		4 th	Conduct Performance test on 2-S CI/SI engine.
45.	12 th	1 st	Do
46.		2 nd	Record Checking and Viva voce test
47.		3 rd	Do
48.		4 th	Thermal conductivity test on (1) Thick slab
49.	13 th	1 st	Do
50.		2 nd	Thermal conductivity test on (2) Composite wall
51.		3 rd	Do
52.		4 th	Thermal conductivity test on (3) Thick cylinder
53.	14 th	1 st	Do
54.		2 nd	Record Checking and Viva voce test
55.		3 rd	Do
56.		4 th	Final Record Checking of all students
57.	15 th	1 st	Do
58.		2 nd	Final Record submission
59.		3 rd	Grand Viva voce Test
60.		4 th	Do

The lesson plan prepared by the concerned faculty

Michael Suveer
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GF, MECHANICAL DEPARTMENT

Udayan Mehta
HOD, Mechanical Dept.



GOVERNMENT POLYTECHNIC, NUAPADA

Academic Lesson Plan for Summer Semester- 2025-26

Name of the teaching faculty: Er. Michael Suveer
Semester: 4th

Department: Mechanical Engineering
Subject: PR:1- THEORY OF MACHINES &
MECHANISM LAB

No. of periods per week: 4
End semester exam: 15
Total Marks : 50

Total Periods: 60
Progressive Assessment: 35

Sl. No.	Week	Period	Topic to be covered
1.	1 st	1 st	Measure the ratio of time of cutting stroke to the return stroke in shaping machine available in institute's workshop by varying the stroke length.
2.		2 nd	do
3.		3 rd	do
4.		4 th	do
5.	2 nd	1 st	do
6.		2 nd	Estimate important kinematic data related to following mechanisms and sketch them (any one) a. Bicycle free wheel sprocket mechanism b. Geneva mechanism c. Ackerman's steering gear mechanism d. Foot operated air pump mechanism
7.		3 rd	do
8.		4 th	do
9.	3 rd	1 st	do
10.		2 nd	do
11.		3 rd	Study of construction and working principle of Eddy current Dynamometers
12.		4 th	do
13.	4 th	1 st	do
14.		2 nd	do
15.		3 rd	do
16.		4 th	Determine velocity and acceleration of various links of the given mechanism (any two) by relative velocity method for analysis of motion of links size drawing sheet).
17.	5 th	1 st	do
18.		2 nd	do
19.		3 rd	do
20.		4 th	do
21.	6 th	1 st	Determine velocity and acceleration in an I. C. engine's slider crank mechanism by Kleins's construction
22.		2 nd	do
23.		3 rd	do
24.		4 th	do
25.	7 th	1 st	do
26.		2 nd	Drawing of profile of radial cam with knife-edge and roller follower with offset reciprocating motion (graphical method).
27.		3 rd	do

28.		4 th	do
29.	8 th	1 st	do
30.		2 nd	do
31.		3 rd	Drawing of profile of radial cam with knife-edge and roller follower without offset reciprocating motion (graphical method).
32.		4 th	do
33.	9 th	1 st	do
34.		2 nd	do
35.		3 rd	do
36.		4 th	Estimate slip, length of belt, angle of contact in an open and cross belt drive.
37.	10 th	1 st	do
38.		2 nd	do
39.		3 rd	do
40.		4 th	do
41.	11 th	1 st	Calculate braking torque at different speeds and load situations of i Internal expanding shoe brake ii Disc Brake
42.		2 nd	do
43.		3 rd	do
44.		4 th	do
45.	12 th	1 st	do
46.		2 nd	Assemble and disassemble different clutches
47.		3 rd	do
48.		4 th	do
49.		1 st	do
50.		2 nd	do
51.		3 rd	Measure radius and height of any two types of governors for different rotational speeds, mass of balls and spring stiffness (in spring loaded governors)
52.		4 th	do
53.		1 st	do
54.		2 nd	do
55.		3 rd	do
56.		4 th	Perform balancing of rotating unbalanced system
57.		1 st	do
58.		2 nd	do
59.		3 rd	do
60.		4 th	do

The lesson plan prepared by the concerned faculty

Michael Suvver
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GF, Mechanical department

Udaya Mehra

HOD, Mechanical Engg

GOVERNMENT POLYTECHNIC, NUAPADA
Academic Lesson Plan for Summer semester- 2025-26

Name of the teaching faculty: Er. Michael Suveer

Department: Mechanical Engineering

Semester: 2nd

Subject: Engineering Mechanics Lab

No. of periods per week: 2

Total Periods: 30

Progressive Assessment: 25

Sl. No	Week	Period	Topic to be covered
1	1 st	1 st	To study various equipments related to engineering Mechanics
2		2 nd	Do
3	2 nd	3 rd	To find the M.A., V.R., Efficiency and law of machine for differential axel and wheel
4		4 th	Do
5	3 rd	5 th	To find the M.A., V.R., Efficiency and law of machine for simple screw jack
6		6 th	Do
7	4 th	1 st	Derive law of machine using worm wheel
8		2 nd	Do
9	5 th	3 rd	Describe law of machine using single purchase crab
10		4 th	Do
11	6 th	5 th	Describe law of machine using double purchase crab
12		6 th	Do
13	7 th	1 st	Derive law of machine using Weston's differential or wormed geared pulley block
14		2 nd	Do
15	8 th	3 rd	Determine resultant of concurrent force system applying law of polygon of forces using force table
16		4 th	Do
17	9 th	5 th	Determine resultant of concurrent force system graphically
18		6 th	Do
19	10 th	1 st	Determine resultant of parallel force system graphically
20		2 nd	Do
21	11 th	3 rd	Verify Lami's Theorem
22		4 th	Do
23	12 th	5 th	Study forces in various members of jib crane
24		6 th	Do
25	13 th	1 st	Determine support reactions for simply supported beam
26		2 nd	Do
27	14 th	3 rd	Obtain supported reactions of beam using graphical method
28		4 th	Do
29	15 th	5 th	Determine coefficient of friction for motion on horizontal and inclined plane
30		6 th	Determine centroid of geometrical plane figures

The lesson plan is prepared by concerned faculty

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