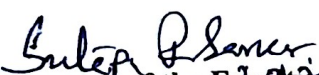


C.V. RAMAN POLYTECHNIC, BHUBANESWAR
LESSON PLAN
Session (2026-2027)

Discipline: Mechanical Engineering	1st Year 2026	Name of the Faculty: Sutapa Sarkar, Asst. Prof.
Subject: Engineering Mechanics	No. of Days/week: 02	Email ID: sutapa.sarkar@cvrp.edu.in
		Start Date: 17.08.2026
		End Date: 17.04.2027
Week	Class Day	Theory Topics
1 st	1 st	Unit; Introduction of Mechanics , Statics, Dynamics, Space, time, mass, particle, flexible body and rigid body.
	2 nd	Scalar and vector quantity, Units of measurement (SI units), Fundamental units and derived units.
2 nd	3 rd	Force – unit, representation as a vector and by Bow's notation
	4 th	Characteristics and effects of a force, Principle of transmissibility of force.
3 rd	5 th	Unit:2 Force system Force system and its classification
	6 th	Resolution of a force - Orthogonal components of a force.
4 th	7 th	Moment of a force, Law of moment, State Varignon's Theorem, Couple and it's moment.
	8 th	Moment of a force, Law of moment, State Varignon's Theorem, Couple and it's moment Analytical method for determination of resultant for concurrent, non-concurrent and parallel co-planar force system.
5 th	9 th	Triangle Law of forces and Polygon Law of forces .
	10 th	Simple Numerical on above.
6 th	11 th	Parallelogram law of Forces (Statement and Derivation)
	12 th	Simple Numerical on above.
7 th	13 th	Unit:3 Equilibrium Equilibrium and Equilibrant, Condition of Equilibrium
	14 th	Free body and Free body diagram
8 th	15 th	Analytical and graphical methods of analyzing equilibrium.
	16 th	Lami's Theorem – Statement and Explanation.
9 th	17 th	Application for various engineering problems.
	18 th	Application for various engineering problems.
10 th	19 th	Beam: Types of Loads, Beam, Supports with their Reactions with neat sketch.
	20 th	Simple Numerical on above.
11 th	21 st	Simple Numerical on above.
	22 nd	Unit:4 Friction Friction and its relevance in engineering, types
12 th	23 rd	Laws of friction, limiting equilibrium, limiting friction, co-efficient of friction, angle of friction, angle of repose.
	24 th	Relation between co-efficient of friction and angle of friction.

13 th	25 th	Equilibrium of bodies on level surface subjected to force parallel and inclined to plane.
	26 th	Simple Numerical on above.
14 th	27 th	Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.
	28 th	Simple Numerical on above.
15 th	29 th	Ladder Friction.
	30 th	Simple Numerical on above
16 th	31 st	Unit:5 Centroid and Centre of Gravity Definition of Centroid, Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle)
	32 nd	Centroid of composite figures.
17 th	33 rd	Centroid of composite figures.
	34 th	Centroid of composite figures.
18 th	35 th	Locate centroid of C-Section.
	36 th	Locate centroid of I-Section.
19 th	37 th	Locate centroid of L-Section.
	38 th	Locate centroid of T -Section.
20 th	39 th	Definition of Centre of Gravity (C.G.), Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere).
	40 th	Unit:6 Moment of Inertia Definition of Moment of Inertia (M.I.), M.I. of Plane Figures-rectangle, square, triangle, circle, semicircle.
21 st	41 st	Parallel Axis Theorem (Statement and Proof)
	42 nd	Perpendicular Axis Theorem (Statement and Proof)
22 nd	43 rd	Determination of Moment of Inertia of Composite Section (I-Section).
	44 th	Determination of Moment of Inertia of Composite Section (T-Section).
23 rd	45 th	Unit:7 Simple Lifting Machine Definition of Load, Effort, Efficiency, Mechanical advantages, Velocity Ratio & Relation between MA, VR & Efficiency.
	46 th	Law of machine, Ideal machine, friction in machine, maximum Mechanical advantage and efficiency.
24 th	47 th	Reversible and non-reversible machines, conditions for reversibility
	48 th	Simple Numerical on above.
25 th	49 th	Determination of MA, VR and Efficiency of Simple Axle and wheel, Differential Axle and Wheel
	50 th	Simple Numerical on above.
26 th	51 st	Determination of MA, VR and Efficiency of Worm and worm wheel.
	52 nd	Simple Numerical on above.
27 th	53 rd	Determination of MA, VR and Efficiency of Single purchase and double purchase crab winch
	54 th	Simple Numerical on above.
28 th	55 th	Determination of MA, VR and Efficiency of Simple Screw Jack.
	56 th	Simple Numerical on above.
29 th	57 th	Unit:8 Gear and Gear Train

		Gear, Gear Drive, Types of Gear Drive.
	58 th	Gear Train, Types of Gear Train.
30 th	59 th	Velocity Ratio of Simple and Compound Gear Train.
	60 th	Numerical on Simple Gear Train.
31 st	61 st	Numerical on Compound Gear Train.
	62 nd	Revision.
32 nd	63 rd	Revision.
	64 th	Revision.


 Signature of the Faculty


 Signature of the H.O.D.