LESSON PLAN
1ST SEMESTER
SESSION (2025-26)

NAME OF THE LECTURER:	**Pooja Kumari**
CLASS AND SECTION:	**B.Sc. 1ST Sem.**
SUBJECT:	**MECHANICS**
	ASSIGNMENTS
Week 1	• Orientation • Fundamentals of Dynamics: Rigid body, moment of inertia • Radius of Gyration • Theorems of perpendicular and parallel axis • Moment of inertia of rod
Week 2	• Moment of inertia of ring, disc, angular disc, solid cylinder, solid sphere, hollow sphere
Week 3	• Moment of inertia of rectangular plate, square plate, solid cone • Torque, rotational K.E, angular momentum, law of conservation of angular momentum
Week 4	• Rolling motion , condition of pure rolling, acceleration of body rolling down an inclined plane • Fly wheel, moment of inertia of an irregular body • Elasticity: deforming force
Week 5	• Elastic limit • stress and strain • stress and strain & their types • Hooks law • Module of elasticity, Relation between shear angle and angle of twist, elastic energy stored in an elastic body
Week 6	• Elongation produced in heavy rod due to its own weight , tension in rotating rod • Poison's ratio & its limiting values, elastic constants and their relations • Torque required for twisting cylinder
Week 7	• Bending of beam, bending moment and its magnitude • Flexural rigidity, geometrical moment of inertia for beam of rectangular cross section • Bending of cantilever

Week 8	• Weight of cantilever uniformly distributed over its length • Dispersion of a centrally loaded beam supported at its ends. • Determination of elastic constants for material of wire by Searle's method
Week 9	• Special theory of relativity: Michelson's Morley experiments and its outcomes • Postulates of special theory of relativity
Week 10	• Lorentz transformations • Lorentz contraction • Time dilation • Relativistic transformation of velocity
Week 11	• Relativistic addition of velocity • Variation of mass energy equivalence • Relativistic doppler effect, kinematics
Week 12	• Transformation of energy and momentum • Transformation of force, problems of relativistic dynamics • Gravitation and central force motion • Law of gravitation
Week 13	• Potential and field due to spherical shell • Potential and field due to solid sphere • Motion of a particle under central force field • Two body problem and its reduction to one body problem and its solution
Week 14	• Compound pendulum or physical pendulum in form of elliptical lamina and expression of time period • Determination of g by bar pendulum • Normal coordinates & normal modes • Normal modes of vibration for given spring mass system
Week 15	• Angular frequencies of oscillation of two identical simple pendulum joined together
Week 16	• Discussion & revision • Unit test

LESSON PLAN
1ST SEMESTER
SESSION (2025-26)

NAME OF THE LECTURER:	**Pooja Kumari**
CLASS AND SECTION:	**B.Sc. Medical 1ST (Minor)**
SUBJECT:	**ELEMENTARY MECHANICS**

	ASSIGNMENTS
Week 1	• Orientation • Fundamentals of Dynamics: Rigid body, moment of inertia • Radius of Gyration
Week 2	• Theorems of perpendicular and parallel axis • Moment of inertia of ring, disc
Week 3	• Moment of inertia of angular disc • Moment of inertia of solid cylinder • Unit test 1
Week 4	• Elasticity: deforming force • Elastic limit • stress and strain
Week 5	• stress and strain & their types • Hooks law • Module of elasticity
Week 6	• Relation between shear angle and angle of twist • Poison's ratio & its limiting values
Week 7	• Torque required for twisting cylinder • Unit test 2
Week 8	• Special theory of relativity: Michelson's Morley experiments and its outcomes

Week 9	• Postulates of special theory of relativity • Lorentz transformations
Week 10	• Lorentz contraction • Time dilation • Relativistic transformation of velocity
Week 11	• Relativistic addition of velocity • Variation of mass energy equivalence • Discussion
Week 12	• Gravitation and central force motion • Law of gravitation • Potential and field due to spherical shell
Week 13	• Potential and field due to solid sphere • Motion of a particle under central force field
Week 14	• Normal coordinates & normal modes • Normal modes of vibration for given spring mass system • Angular frequencies of oscillation of two identical simple pendulum joined together
Week 15	• Angular frequencies of oscillation of two identical simple pendulum joined together • Unit test 3
Week 16	• Discussion & revision • Unit test 4