

Weekly Lesson Plan (1 August -15 November 2025)

Name of Teacher

Vijay Yadav

Class

B.Sc. Physical Science – 1st

Session (2025–26)

Week (2025)	Unit & Topics	Activities / Focus
Week 1 (1–2 Aug)	Unit I: Fundamentals of Dynamics – Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular & parallel axis (with proof	Introduction lecture, derivations & basic numericals
Week 2 (4–9 Aug)	Unit I – Moment of Inertia of rod, ring, disc, angular disc, solid cylinder.	Derivations + problem solving
Week 3 (11–16 Aug)	Unit I – Solid sphere, hollow sphere, rectangular plate, square plate, triangular plate	Derivations + problem solving
Week 4 (18–23 Aug)	Unit I – Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum.	Illustrative problems & numericals
Week 5 (25–30 Aug)	Unit I – Rolling motion, condition for pure rolling, acceleration down an inclined plane, Flywheel, Inertia of irregular body	Tutorial session + numericals. Unit I Test/Quiz
Week 6 (1–6 Sep)	Unit II: Elasticity – Deforming force, Elastic limit, Stress & strain types, Hooke's law, Modulus of rigidity	Lecture + small numericals
Week 7 (8–13 Sep)	Unit II – Shear angle & angle of twist, elastic energy, elongation in heavy rod, tension in rotating rod, Poisson's ratio, limiting value.	Derivations & problem solving
Week 8 (15–20 Sep)	Unit II – Elastic constants and their relations, torque for twisting cylinder, hollow vs solid rod stiffness.	Lab demo / derivations / numericals
Week 9 (22–27 Sep)	Unit II – Bending of beam, bending moment & magnitude, flexural rigidity,	Practice problems. Unit II Mid-Test

	geometrical moment of inertia of beams.	
Week 10 (29 Sep–4 Oct)	Unit II – Bending of cantilever with load, Searle’s method, dispersion of centrally loaded beam.	Lab-based demonstration + numericals
Week 11 (6–11 Oct)	Unit III: Special Theory of Relativity – Michelson–Morley experiment, postulates, Lorentz transformations.	Lecture + concept numericals
Week 12 (13–18 Oct)	Unit III – Simultaneity, Lorentz contraction, Time dilation, relativistic velocity addition.	Numericals + examples
Week 13 (20–25 Oct)	Unit III – Mass-energy equivalence, relativistic Doppler effect, transformation of energy, momentum & force.	Derivations + Unit III Test
Week 14 (27 Oct–1 Nov)	Unit IV: Gravitation & Central Force Motion – Law of gravitation, Potential & field, motion under central force, two body problem.	Lecture + numericals
Week 15 (3–8 Nov)	Unit IV – Compound pendulum, determination of g, normal modes, oscillation of two pendulums joined with spring.	Lab demo + numericals + Revision of Unit IV
Revision & Prep (10–15 Nov)	Full syllabus revision, sample paper solving, 20% numericals emphasized	Class discussion, Q&A