

Physics-I syllabus for sem 1

Topics : [Computer engineering](#)

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The syllabus for Physics-I in Semester 1 for computer engineering students generally covers fundamental topics in classical mechanics, thermodynamics, and wave motion, with a focus on applications relevant to the field of computer engineering.

1. Units and Dimensions:

- Introduction to physical quantities, units, and dimensions.
- Dimensional analysis and its applications.

2. Kinematics:

- Scalars and vectors.
- Motion in one dimension: Displacement, velocity, and acceleration.
- Motion in two and three dimensions: Projectile motion, relative velocity.

3. Newton's Laws of Motion:

- Newton's first law of motion (law of inertia).
- Newton's second law of motion and its applications.
- Newton's third law of motion and its applications.
- Forces: Types of forces, free body diagrams.

4. Circular Motion:

- Uniform circular motion.
- Centripetal force and centrifugal force.

5. Work, Energy, and Power:

- Work done by a force.
- Kinetic energy and potential energy.
- Conservation of mechanical energy.
- Power and its calculation.

6. Gravitation:

- Law of gravitation.
- Gravitational potential energy.
- Kepler's laws of planetary motion.

7. **Thermodynamics:**

- Thermal equilibrium and temperature.
- Zeroth law of thermodynamics.
- First law of thermodynamics and its applications.
- Heat transfer: Conduction, convection, and radiation.

8. **Simple Harmonic Motion (SHM):**

- Definition and characteristics of SHM.
- Simple pendulum and mass-spring system.

9. **Waves:**

- Wave motion and its types.
- Characteristics of waves: Amplitude, frequency, wavelength, and wave speed.
- Types of waves: Transverse and longitudinal waves.
- Sound waves: Speed of sound, Doppler effect.

10. **Superposition of Waves:**

- Principle of superposition.
- Interference of waves: Constructive and destructive interference.
- Standing waves and resonance.