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.