

# 2026- BPO8-Syllabus

## Mechanics

- ✓ **Measurement**
  - Fundamental quantities and derived quantities
  - Conversion of units
  - Significant digits of numbers
- ✓ **Motion in One Dimension**
  - Position, velocity, and acceleration
  - Motion diagrams
- ✓ **Motion in Two Dimensions**
  - Position, displacement, velocity, and acceleration
- ✓ **Projectile Motion**
  - The trajectory of a projectile as combination of horizontal motion with constant velocity and vertical motion with constant acceleration
  - A body projected horizontally
  - Height and range of a projectile
- ✓ **The Laws of Motion**
  - The concept of force
  - Newton's first law
  - Newton's second law
  - Newton's third law
  - Forces of friction
  - Free-body diagram
- ✓ **Energy of a System**
  - Work done by a constant force
  - Kinetic energy
  - Kinetic energy and the work–kinetic energy theorem
  - Potential energy of a system
  - Conservative and non-conservative forces
  - Relationship between conservative forces and potential energy
  - Mechanical energy of a system
  - Changes in mechanical energy for conservative and nonconservative forces
  - Mechanical energy of a block–spring system
- ✓ **Gravitation**
  - Newton's Law of Gravitation
  - Weight
  - Gravitational Potential Energy
  - The Motion of Satellites
  - Kepler's Laws and the Motion of Planets

## Electromagnetism

- ✓ **Electrostatics**
  - Electric Charge
  - Coulomb's Law
  - Electric Field, Electric Forces, Electric lines
  - Electric Potential Energy
  - Electric Potential, Equipotential Surfaces

Capacitors and Capacitance  
Capacitors in Series and Parallel  
Energy Storage in Capacitors and Electric-Field Energy  
Conductors and Dielectrics

✓ **Current and Resistance**

Electric current

Resistance

Ohm's law

Electromotive force

Resistors in series and parallel

Equivalent resistance in simple circuits

Electric power