1. Measurements and Units
   * Length, mass, time, and temperature measurements
   * SI units and derived units
   * Scalars and vectors
   * Errors and uncertainties in measurements
2. Mechanics
   * Motion: distance, displacement, speed, velocity, and acceleration
   * Equations of motion and graphical analysis
   * Newton's laws of motion
   * Forces and equilibrium
   * Friction and its effects
   * Work, energy, and power
   * Conservation of energy
   * Momentum and impulse
   * Simple machines and mechanical advantage
   * Pressure in fluids and solids
   * Elasticity and Hooke's law
   * Simple harmonic motion
3. Thermal Physics
   * Kinetic theory of matter
   * Temperature and heat
   * Thermal expansion
   * Specific heat capacity and latent heat
   * Heat transfer: conduction, convection, and radiation
   * Gas laws and ideal gas equation
4. Waves and Optics
   * Properties and types of waves
   * Wave speed, frequency, wavelength, and amplitude
   * Reflection, refraction, and diffraction
   * Interference and superposition
   * Sound waves and properties of sound
   * Light waves: reflection, refraction, and dispersion
   * Lenses, mirrors, and optical instruments
   * Electromagnetic spectrum
5. Electricity and Magnetism
   * Electrostatics: charge, electric field, and potential
   * Electric current, potential difference, and resistance
   * Ohm's law and resistivity
   * Electric circuits: series and parallel
   * Electrical energy and power
   * Capacitors and capacitance
   * Magnetism: magnetic fields, forces, and materials
   * Electromagnetism and electromagnetic induction
   * Direct current (DC) and alternating current (AC) circuits
   * Transformers and power transmission
   * Digital electronics: semiconductors, diodes, transistors, and operational amplifiers
6. Atomic and Nuclear Physics
   * Atomic structure and the periodic table
   * Radioactivity: types, properties, and detection
   * Half-life and decay series
   * Nuclear reactions: fission and fusion
   * Applications of radioactivity and nuclear energy
7. Electronics (Optional)
   * Basic electronic components and circuits
   * Introduction to digital electronics and logic gates
8. Astrophysics (Optional)
   * The solar system and celestial bodies
   * The life cycle of stars
   * The Milky Way and other galaxies
9. Practical Skills
   * Laboratory safety and equipment
   * Planning and executing experiments
   * Recording, presenting, and analyzing data
   * Evaluating experimental results and sources of error