

E³ STEM ACADEMY

Engage-Enhance-Excel

AP PHYSICS 2 - Course Outline

UNIT 1: Electrostatics

- Coulomb's Law
- Electric Field
- Electric Potential

UNIT 2: Electric Circuits

- Resistance
- Ohm's Law
- DC Circuits (series, parallel, and compound)
- Kirchhoff's Laws
- Capacitance
- RC circuits

UNIT 3: Magnetism & Electromagnetic Induction

- Magnetic Field
- Magnetic Force
- Magnetic Flux
- Faraday's Law
- Lenz's Law
- Motional emf

UNIT 4: Thermodynamics

- Kinetic Theory
- Ideal Gases
- 1st Law of thermodynamics
- Thermodynamic Processes
- PV Diagrams
- 2nd Law of thermodynamics
- Heat engines; Carnot cycle

UNIT 5: Fluids

- Density
- Pressure
- Pascal's principle
- Buoyant force/Archimedes' principle
- Fluid flow/continuity
- Bernoulli's Equation

UNIT 6: Optics

- Electromagnetic spectrum
- Reflection
- Mirrors
- Refraction & Snell's Law
- Interference
- Diffraction
- Thin film interference

UNIT 7: Atomic, Nuclear, & Modern Physics

- Atomic structure & isotopes
- Fundamental Forces
- Photons
- Photoelectric Effect
- Compton Scattering / Photon Momentum & Photon-Particle Collisions
- Wave-particle duality/ DeBroglie Wavelength
- Atomic Energy levels
- Absorption & emission spectra
- Quantum Mechanics, Wave Functions & Probability
- Electron Diffraction
- Mass-energy equivalence
- Radioactive Decay (α , β , γ decay & half-life)
- Fission & Fusion