Advanced Placement Physics B Syllabus

Vectors and Kinematics

Topics:

Motion in One Dimension
Free Fall
Vectors
Motion in Two Dimensions/Projectile Motion
Relative Velocity

Textbook Reference:

Chapter 2 sections 1-7
Chapter 3 sections 1-6
Chapter 4 sections 1-5

Dynamics, Circular Motion, Gravitation

Topics:

Newtons Laws
Dynamics
Friciton
Inclines
Circular Kinematics
Circular Dynamics
Gravitation
Orbits and Satellites
Kepler's Laws

Textbook Reference:

Chapter 5 sections 1-7
Chapter 6 sections 1-5
Chapter 12 sections 1-3

Work, Power and Energy

Topics:

Work
Kinetic Energy
Work-Energy Theorem
Power
Conservative Forces
Potential Energy
Hooke's Law
Conservation of Energy

Textbook Reference:

Chapter 7 sections 1-4
Chapter 8 sections 1-4

Momentum and Collisions, Oscillations

Topics:

Momentum
Impule
Conservation of Momentum
Types of Collisions
Collisions in 2 dimensions
Oscillations

Textbook Reference:

Chapter 9 sections 1-6
Chapter 13 sections 1-6

Fluids

Topics:

Pressure
Achimedes' Principle
Buoyancy
Fluid Flow
Continuity
Bernoulli's Equation

Textbook Reference:

Chapter 15 sections 1-8

Heat and Thermodynamics

Topics:

Gas Laws
Linear Expansion
Kinetic Theory
Heat Transfer
Laws of Thermodynamics
PV Diagrams
Engines and Refrigerators

Textbook Reference:

Chapter 16 sections 2, 3, 6
Chapter 17 sections 1-2
Chapter 18 sections 1-10

Electrostatics

Topics:

Charge
Coulomb's Law
Electric Fields
Electric Potential
Capacitance

Textbook Reference:

Chapter 19 sections 1-6
Chapter 20 sections 1-6

Circuits

Topics:

Current
Resistance
Ohm's Law
Series and Parallel Circuits
Kirchhoff's Rules
Terminal Voltage
Capacitive Circuits

Textbook Reference:

Chapter 21 sections 1-8

Magnetism

Topics:	Magnetism Magnetic Forces Velocity Selectors and Mass Spectrometers Current and Magnetism Induction Faraday's Law and Lenz's Law
Textbook Reference:	Chapter 22 sections 1-8 Chapter 23, sections 1-4

Waves and Optics

Topics:	Waves Sound/Musical Instruments Electromagnetic Radiation Mirrors and Lenses Refraction Diffraction
Textbook Reference:	Chapter 14 sections 1, 2, 4, 6-9 Chapter 25 sections 1-3 Chapter 26 all Chapter 27 section 6 Chapter 28 sections 1-4, 6

Modern/Nuclear Physics

Topics:	Quantum Physics Photoelectric Effect Dual Nature of Light and Matter Models of the Atom Radioactivity Binding Energy Fission and Fusion
Textbook Reference:	Chapter 30 sections 1-6 Chapter 31, sections 1-4 Chapter 32 sections 1-2, 4-6