

AP Physics: 2011-2012: Mechanics

Course Outline

Textbook: *Physics for Scientists and Engineers*

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	<u>Chapter(s)</u>
1. Basics: Standards, geometry and vectors	1
2. Kinematics	2, 3
Motion in one dimension	
Motion in two dimensions	
3. Newton's Laws of Motion	4, 5
Static equilibrium (First Law)	
Dynamics of a single body (Second Law)	
Systems of two or more bodies (Third Law)	
4. Work, energy and power	6, 7
The work-energy theorem	
Conservative forces and potential energy	
Conservation of energy	
Power	
5. Systems of particles, linear momentum	8
Center of mass	
Impulse and momentum	
Conservation of linear momentum, collisions	
6. Rotation	9, 10
Torque and rotational statics	
Rotational inertia	
Rotational kinematics	
Rotational dynamics	
Angular momentum and its conservation	
7. Gravitation	11
Kepler's laws of planetary motion	
Universal Gravitation	
Bodies in Orbit, Work and Gravity, Escaping Orbit	
8. Harmonics	14
Simple Harmonic Motion of Springs and Pendulums	
Energetics of Springs and Pendulums	

