Information for Course Syllabus

Name of Course: AP Physics C

Grade Level: 11-12

School: ORHS

Major Assignments: Formal Lab Reports, Post AP Exam PBL

Field Trips: UT Engineering Day

How can parents access instructional materials? Canvas

AP Physics C
2021-2022

Term 1

Kinematics	
	Average and Instantaneous Velocity
	Average and Instantaneous Acceleration
	Kinematic Equations
	Free Fall
	Graphical and Component Addition of Vectors
	Unit Vectors
	Kinematic Equations in Vector Form
	Vector Multiplication: Dot and Cross Products
	Projectile Motion
	Uniform Circular Motion
	Relative Motion

Dynamics	
	Newton's Laws
	Mass, Weight, Inertia
	Friction
	Centripetal Force
	Position Dependent Forces
	Time Dependent Forces
	Velocity Dependent Forces

AP Physics C
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Term 1

Energy and Momentum	Work Due to Constant and Variable Forces
	Work-Energy Theorem
	Power
	Potential Energy
	Conservation of Mechanical Energy
	Dissipative Forces and Conservation of Energy
	Equilibrium Diagrams and Potential Energy Gradients
	Linear Momentum and its Conservation
	Collisions in 1D and 2D
	Center of Mass
	Thrust and Systems of Variable Mass
	Simple Harmonic Motion
	Differential Equations and Simple Harmonic Motion
	Physical Pendulums
	Spring Combinations
	Kepler's Laws
	Gravitational Fields
	Gravitational Potential Energy

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Term 1

Rotational Motion	
	Angular vs Linear Variables
	Rotational Kinematics
	Rotational Kinetic Energy
	Derivation of Moments of Inertia Using Calculus
	Parallel Axis Theorem
	Torque as a Vector
	Torque and Angular Acceleration
	Rolling Without Slipping
	Angular Momentum of a Particle
	Angular Momentum of a Solid Object
	Conservation of Angular Momentum
	Precession

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Term 2

Electrostatics	Charge and Coulomb's Law
	The Electric Field
	Point Charge Distributions
	Continuous Charge Distributions
	Motion of Charged Particles in an Electric Field
	Electric Flux
	Gauss's Law
	Electric Potential and Potential Difference
	Potential Difference in Uniform Electric Fields
	Potential and Point Charges
	Potential and Continuous Charge Distributions
	Conductors
	Capacitance
	Gauss's Law and Capacitance
	Charge on a Capacitor
	Combination of Capacitors
	Energy Stored in Capacitors
	Dielectrics

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Term 2

Current and Circuits	
	Ohm's Law
	Resistivity
	Electrical Power
	Electromotive Force and Internal Resistance
	Equivalent Resistance
	Kirchhoff's Rules
	RC Circuits

Magnetism	
	Magnetic Force on Moving Charges and Currents
	Path of Moving Charge in Magnetic Field
	Hall Effect
	Biot-Savart Law
	Parallel Conductors
	Ampere's Law
	Solenoids and Toroids
	Magnetic Flux
	Gauss's Law of Magnetism
	Faradays' Law of Induction
	Lenz's Law
	Inducted emf and Electric Fields
	LRC Circuits
	Generators and Motors
	The Maxwell Equations

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Term 2

Magnetism cont.	Self-Inductance
	RL Circuits
	Energy in Magnetic Fields
	Mutual Inductance
	Electronic Oscillations in LC Circuits
	The RLC Circuit

AP Exam Review

PBL