Physics - Course Syllabus

Description:
This rigorous full-year course engages students in the study of matter and energy and their interactions. The components of this course include, motion, work, gravity, heat, waves, sound, light, electricity, circuits, magnetism, atoms, electronics, and applications of physics in the real world.


Course objectives:
Throughout the course, you will meet the following goals:
- Describe the nature of physics and its related fields.
- Explore the scientific method of inquiry and its applications.
- Understand the concepts and relationship between displacement, time/speed, and velocity.
- Examine the causes of circular motion, including gravitation.
- Understand the concept of wave motion, including wave speed, frequency, wave length, amplitude, and energy, and discuss their relationships.
- Describe an electric field, including positive and negative charges, conductors and insulators, and the properties of conductors in electrostatic equilibrium.

Contents:

Semester A
1: Introduction to Physics
2: Vectors
3: Motion in a Straight Line
4: Force
5: Motion in Two Dimensions
6: Universal Gravitation
7: Momentum
8: Energy
9: Work, Power, and Simple Machines
10: Thermal Energy
11: The Fluid States
12: Waves and Energy Transfer

Semester B
13: Light
14: Geometric Optics
15: Diffraction/Interference of Light
16: Static Electricity
17: Electric Fields
18: Current Electricity
19: Electrical Circuits
20: Magnetic Fields
21: Electromagnetic Induction
22: The Nucleus
23: The Atom
24: Astrophysics
25: Relativity

Grading Scale
A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = under 59%

Grade Weighting
Quizzes .......................... 70%
Mid-Term/Final Exams .... 30%