



Physics

Grand Haven High School



Course Number: D62A / D62B

Grade Level: 11/12

Credits : 1

Prerequisite Courses : Algebra II (or concurrently)

Course Description

This course is designed to meet the State of Michigan curriculum content expectations for Physics as both a GHHS and State of Michigan graduation requirement. Physics is the most fundamental of the sciences and deals with the relationships between matter and energy. Laboratory experiments are done to reinforce Physics concepts and give first hand experiences with basic lab procedures and equipment. A student having his/her own scientific calculator is strongly recommended. Graphing calculators are helpful, but not required.

Course Objectives

Basic to moderate use and application of mathematical skill, reasoning, and problem solving are integral to this course.

The course as a whole is divided into comprehensive units as described below, along with the associated chapters

- 1) Kinematics (Chapters 2 and 3)
- 2) Newton's Laws of Motion and Gravitation (Chapters 4 and 5)
- 3) Conservation Laws & Systems (Energy and Momentum, Chapters 6 and 7)
- 4) Oscillations and Sound (Chapters 11 and 12)
- 5) Electricity and Magnetism Essentials (Partials of Chapter 16,17,18,19,20,21)
- 6) Technology and Waves - Optics (Chapters 23 & 25)

Student Expectations

For Behavioral Expectations, see bottom of this page. All students and staff are expected to do their personal best in class daily. It is expected that students come to class ready to learn and are prepared to learn everyday. The classroom and laboratory have the potential to pose dangers to the student. Students will read and sign a Lab Safety Contract.

Building Behavioral Expectations

TEAM GH ... One Team, One Family, One Grand Haven. Be Kind. Always.

It is our expectation that ALL GHHS students, staff and parents will ... always give their best **EFFORT** in everything that they do, work hard to be **INCLUSIVE** of each other, show **RESPONSIBILITY** in class, the hallways, cafeteria and at events, and **WORK TOGETHER** at all times!

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Communication

Students and parents have immediate access to grades by using the Parent Internet Viewer. Teachers of this course will provide communication to parents of poorly performing students. Teachers are available for parental contact by phone and email. The teacher may use a teacher blog or other online resource to facilitate learning.

Grading Policy

Please see the link for the Science Department Grading Scale

This course has two graded categories:

Assessments (Tests/Quizzes): 70% of overall grade

Homework/Labs/Classwork/Other: 30% of overall grade

Scope and Sequence

1st Semester

Ch 2 - Kinematics in 1 dimension; velocity, acceleration, falling objects

Ch 3 - 2 dimensional motion and vectors; vector math, projectiles, relative velocity

Ch 4 - Newton's laws; force, laws of motion, force models, friction

Ch 5 - Circular Motion and Gravitation; kinematics and dynamics of circular motion

Ch 6 - Work and Energy; work, forms of energy, energy conservation, power

Ch 7 - Linear Momentum; momentum and impulse, conservation of momentum

2nd Semester

Ch 11 - Vibrations and Waves; SHM, energy, resonance, waves and their properties

Ch 12 - Sound; characteristics, intensity, human ear, applications

Ch 16 - Electric Force; charge, Coulomb's law, electric field

Ch 17 - Electric Potential; potential difference and voltage

Ch 18 - Electric Circuits; current, resistance, electric power, alternating current

Ch 19 - DC circuits; circuit design and analysis - series, parallel and complex

Ch 20 - Magnetism; magnetic fields

Ch 21 - Electromagnetic Induction; Faraday's law, generators, transformers

Ch 23 - Light and Geometric Optics; reflection, refraction, Snell's law, applications

Ch 25 - Optical Instruments; human eye, lenses, microscopes and telescopes

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