

Physics 121: How Things Work (*Physics for Everyday Life*)

Text:

How Things Work: The Physics of Everyday Life,
5th Ed, by Louis A. Bloomfield

John Wiley & Sons, Inc.

DESCRIPTION:

The course is a practical introduction to physics and science in everyday life. It considers objects from our daily environment and focuses on the physics principles of operation and relationships to one another.

PURPOSE OF THE COURSE:

Purpose of the Course: In this course, students will begin to see how physics and scientific thinking plays a role in their everyday lives. The students will learn to think logically in order to solve problems and they will develop and expand their physical intuitions. In addition, students will learn how everyday things work and will begin to understand that the universe is predictable rather than mysterious. Finally, students will obtain a perspective on the history of science and technology. Students with a scientific curiosity will find this course interesting because of the relevant examples.

STUDENT LEARNING OUTCOMES:

The major goals of this course are:

Recognize and apply physical principles of linear motion.

Recognize and apply concepts of mass, inertia, forces, momentum, energy and work.

Learn about properties of matter.

Apply physical principles of heat.

Apply physical principles of Electricity and Magnetism.

Apply physical principles of Optics and Electromagnetic Waves.

Gain knowledge of modern Physics (Nuclear and Medical).

Be exposed to basic Physics principles of Climate change.

TOPICAL OUTLINE

Number of Class Meetings	Chapters
1	Review of Course Outline Introduction
2	Chapter 1 – The Laws of Motion Skating and falling balls physics
2	Chapter 2 – The Laws of Motion part II Wind Turbines and Bumper cars
2	Chapter 3 – Mechanical Objects Carousels and roller coasters, seesaws
2	Chapter 5 – Fluids Hurricanes, hot air balloons, helium balloons
2	Chapter 7 – Heat and Phase Transition Woodstoves, insulation
2	Chapter 8 – Thermodynamics Air conditioners and automobiles
2	Chapter 10 – Electricity Lightning rods, air cleaners and photocopiers
2	Chapter 11 – Magnetism and Electrodynamics Tape recorders, electric motors, Hybrid Car
2	Chapter 13 – Electromagnetic Waves Radio and television, Microwave ovens

2	Chapter 14 – Light Sunlight, fluorescent light , lasers,
2	Chapter 15 –Modern Physics Nuclear weapons and nuclear reactors, Medical imaging
2	Physics of Climate change Environmental impacts, climate changes, the use of fossil fuel resources and alternative solutions.
1	Course Review

FINAL EXAM -- Friday 12/15/2014. ** calculator + 1 page of notes allowed

This Schedule is subject to Change

Organization:

PHYS121 is an online lecture course, (for each week students will be provided with power point lectures, and class will meet two times per week in a virtual classroom for one hour for discussion). To be successful in this course, students must (1) have full regular access to a computer and to the internet; (2) have basic computer skills; (3) be able to install software; (4) be proficient in navigating the WWW and downloading files; (5) have a UH e-mail address and know how to attach files to an e-mail message.

Syllabus contains twelve sections, each spanning about one week, two weeks are allotted for midterm exams and review, the last week is allotted for final review.

Student Evaluation:

Essay	20%
Homework	10%
Midterm 1	20%
Midterm 2	20%
Final	30%

Essay: There will be two essays during the semester. A three week notice will be given for each essay deadline.

Homework: Homework will be given weekly and will be due one week after, prior to the beginning of the class.

Chapter Test:

There will be two chapter tests and a final exam during the semester. One week notice will be given for each test. Exams will consist of multiple choice questions and a simple problem solving question.

Exams will be given in UH testing center for student resident on Oahu island. For other students exams must be taken in a proctored testing center.

Teacher:

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