PHYS-1050: EVERYDAY PHYSICS

Cuyahoga Community College

Viewing: PHYS-1050 : Everyday Physics

Board of Trustees:
December 2022

Academic Term:
Fall 2023

Subject Code
PHYS - Physics

Course Number:
1050

Title:
Everyday Physics

Catalog Description:
Introductory science course designed to develop an understanding of the phenomena of our everyday life via the laws of physics. The emphasis is not on problem-solving course, but on encouraging students to understand and appreciate their environment from a new perspective. Explores application of various fields of physics to everyday living, household applications, sports applications and other applications discussed.

Credit Hour(s):
2

Lecture Hour(s):
2

Lab Hour(s):
0

Other Hour(s):
0

Requisites

Prerequisite and Corequisite
ENG-1010 College Composition I, or ENG-101H Honors College Composition I, and MATH-0955 Beginning Algebra, or qualified Math placement.

Outcomes

Course Outcome(s):
Utilize basic science literacy and improved quantitative reasoning skills to better fulfill one's role as a knowledgeable citizen.

Essential Learning Outcome Mapping:
Quantitative Reasoning: Analyze problems, including real-world scenarios, through the application of mathematical and numerical concepts and skills, including the interpretation of data, tables, charts, or graphs.

Objective(s):
1. Describe the processes by which scientific knowledge is obtained and evaluated.
2. Discuss the applications of physics to household tools and activities.
3. Explain the physics of electricity with its units and terms.
4. Discuss general principles of heating, stoves, and refrigerators.
5. Explain fundamental laws and principles of physics.
6. Discuss common phenomena using the principles of physics.
7. Examine how physics relates to everyday life.
8. Explain physics as a scientific area of study.
9. Discuss the physics of spinning devices.
10. Explain the advantages and disadvantages of various forms of energy transformations.

11. Apply physics principles to everyday objects and events.
12. Explain physics in scientific studies or current events.

Course Outcome(s):

Apply knowledge of fundamental laws & principles of physics to everyday life including applications to the household, athletic activities, and common phenomena.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

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Methods of Evaluation:

a. Exams
b. Quizzes
c. Assignments
d. Case Studies
e. Research Papers
f. Class Presentations
g. Collaborative Class Projects
h. Article Reviews

Course Content Outline:

a. Fundamental laws of Physics
    i. Linear motion
    ii. Newton's laws of motion and gravitation
    iii. Simple harmonic motion
    iv. Rotational motion and equilibrium
    v. Conservation of energy and momentum
b. Physics of electricity and magnetism
    i. Electrostatic
    ii. Electric circuits
    iii. Magnetism
    iv. Generators and transformers
c. Wave Motion and optics
    i. Interference and standing waves
    ii. Sound waves
    iii. Light waves and color
    iv. Light and image formation
d. The Atom
    i. The structure of the atom
    ii. Cathode rays and x-rays

iii. Radioactivity
iv. The nucleus and nuclear energy

e. Relativity and beyond
i. The speed of light and Einstein postulates
ii. Time dilation and length contraction
iii. Mass-Energy equivalence
iv. General relativity and space-time

f. Looking deeper into everyday phenomena
i. Elementary particles
ii. Cosmology
iii. Semiconductors and microelectronics
iv. Superconductors

Resources

Griffith, W. Thomas. *The Physics of Everyday Phenomena*. 10th ed. Mc Graw Hill, 2022.

Monthly magazine. "The Physics Teacher"

Monthly magazine. "Scientific American"

Bloomfield, Louis. *How Things Work: The Physics of Everyday Life*. 6th ed. Hoboken, New Jersey: Wiley, 2015.

Instructional Services

OAN Number:
Ohio Transfer 36 TMNS

Top of page
Key: 3605