

PHYS 1115: Basic Physics

Instructor Information:

Name
Office phone
Office location
Office hours
E-mail address

I. Course Description

An introductory course for students having little or no background in physics. Students are introduced to a variety of topics including motion, energy, fluids, electric circuits, optics, and waves. Intended to prepare engineering technology students to be successful in PHYS 2010 and 2020 and to provide a physical science elective without a lab for all students. Course does not transfer.

Credit Hours: 3 Credits 3 Class Hours

Prerequisite: Two years of high school algebra

II. Course Outcomes and Topics

Upon successful completion of this course, the student will be able to:

- Describe the scientific method.
- Illustrate the physical quantities necessary to describe one dimensional motion, write the equations relating the properties, and apply the equations to simple motion problems.
- Explain Newton's Laws of Motion and apply the laws to simple force systems.
- Discuss the concepts of energy and momentum and apply their conservation laws to simple situations.
- Elaborate on the structure and states of matter.
- Explain the concepts of temperature and heat, apply them to simple problems, and discuss the laws of thermodynamics.
- Discuss the concepts of basic and applied electricity and magnetism and apply them in simple situations.
- Interpret the ideas of wave motion, sound, and electromagnetic waves and solve simple wave motion problems.
- Explain the basic concepts of optics and solve simple lens and mirror problems.

Course Topics

- Science and the scientific method
- Inertia and Newton's First Law of Motion
- Linear Motion
- Newton's Second Law of Motion
- Newton's third Law of Motion
- Momentum and Energy
- Rotational Motion

- Gravity
- The Atomic Nature of Matter
- Solids, Liquids, Gases, and Plasmas
- Temperature, Heat, and Expansion
- Heat Transfer
- Change of Phase
- Vibrations, Waves, and Sound
- Electrostatics and Electric Current
- Magnetism and Electromagnetic Induction
- Properties of Light and Color
- Reflection and Refraction
- Light Waves, Light Emission, and Quanta

III. Required Materials Check with your instructor first.

- Conceptual Physics, package, 11/E by Paul Hewitt, Pearson Addison Wesley, ISBN 978-0-321-68946-7

OR if purchased separately:

- Conceptual Physics, 11/E by Paul G. Hewitt. Publisher: Pearson-Addison Wesley. ISBN 0-321-56809-5

AND

- The Practice Book for Conceptual Physics by Paul G. Hewitt , 11th edition, Pearson Addison Wesley, ISBN 0-321-66256-3

AND

- Problem Solving for Conceptual Physics by Hewitt & Wolf, 11/E, Prentice Hall, ISBN 978-0-321-66258-3
- Suggested Materials: Scientific Calculator, Protractor, Metric Rule, Compass (circle maker)

IV. Course Policies

Attendance

Each instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of "FA or "FN" (see explanation below) depending on the individual instructor's course policy.

FA = failure, attendance related (unofficial withdrawal). Last recorded date of attendance required.

FN = failure, never attended class (unofficial withdrawal).

Please be advised that instructors also may have a more specific class policy.

Method of Assessment / Evaluation: Subject to change at instructor's discretion.

Exams There are eight major parts to the book. A test will be given after each part. A comprehensive final exam will be given at the end of the semester.

Grading Scale

The course grade will be obtained by dropping the lowest test grade and replacing it with the final exam grade. The numerical grade will then be determined by finding the average of these grades. The final letter grade for the course is derived from the numerical average as follows:

A 90-100, B 80-89, C 70-79, D 60-69, F 0-59

V. ADA Statement

Nashville State Technical Community College complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Disability Coordinator at 353-3721 in the Student Services building. Such services must have proof of documentation that is not over three years old.

VI. Classroom Behavior

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

Academic Dishonesty_(Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. "Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words" (A Writer's Reference 331). Academic dishonesty may be defined as, but

is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else's work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor's permission, allowing someone else to copy or use your work, using someone else's work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member's signature.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an "F" or a "Zero" for the exercise, paper, or examination or to assign an "F" for the course.

NOTE: This syllabus is meant simply as a guide and overview of the course, the topics, the objectives, the general assessments, and some standard college policies. Some items are subject to change or revision at the instructor's discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.