Piedmont Technical College Course Syllabus

COURSE INFORMATION

Course Prefix/Number: PHY 202

Title: Physics II

Responsible Division: Arts and Sciences

Last Day to Withdraw from this Course: For the last date to withdraw from this course, consult the current *Student Calendar*.

Course Description:

For course, credit hour, pre-requisite(s) and co-requisite(s) information, visit the Detailed Course Information page: www.ptc.edu/courses/PHY202.

Textbook and Other Materials:

For textbook information and additional required and/or supplemental materials, visit the college bookstore (www.ptc.edu/bookstore).

Proctored Examinations:

Proctored examinations for distance learning courses taken at non-PTC campuses may require a proctoring fee for each exam taken.

COURSE POLICIES

Course policies are available online through the *Academic Catalog* and *Student Handbook*. Visit the Course Policies page (www.ptc.edu/syllabus/policies) for a detailed list of important policies and more information.

GRADE POLICY

Detailed grading policy information can be found on the Grading Policy webpage (http://www.ptc.edu/grading-policy). Final grade appeal information is available in the *Academic Catalog* (http://www.ptc.edu/catalog/).

ACCOMMODATIONS

Accommodations for ADA:

Information is available on the Student Disability Services webpage (http://www.ptc.edu/ada).

TITLE IX HARASSMENT AND SEXUAL ASSAULT INFORMATION

In accordance with Title IX of the Education Amendments of 1972, Piedmont Technical College does not discriminate on the basis of sex in its education programs or activities. Title IX protects students, employees, and applicants from sex discrimination in admissions and employment to include discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. More information regarding Title IX, including contact information for the Title IX coordinators, is available at Title IX Harassment and Sexual Assault Information (https://www.ptc.edu/about/legal-disclosures/title-ix-harassment-and-sexual-assault-information).

RATIONALE

Why do I need this course?

Physics is the basis of all physical science and engineering. This course will develop understanding of physical phenomena and scientific analysis. Some topics include foundations of electricity and magnetism, optics, relativity, quantum theory, nuclear and atomic physics, modern physics, and astrophysics.

PROGRAM INFORMATION

For program information including required courses, program learning outcomes, gainful employment information and advisement information, refer to the Academic Program webpage. Go to Academics (http://www.ptc.edu/academics), select your program, and then select Credentials Offered.

COURSE STUDENT LEARNING OUTCOMES

Upon successful completion of this course and/or clinical, each student will be able to:

- Graphically and analytically use geometric optics to show reflection, refraction, and the creation of images in mirrors and lenses.
- Use wave optics to show and calculate interference patterns in diffraction gratings and thin films.
- Solve problems involving electric charge, electric forces, electric fields, and electric potentials.
- Analyze direct current circuits involving sources of emf, resistors, capacitors, and inductors, including the use of Kirchhoff's Laws to find currents in complicated circuits.
- Solve problems involving magnetism, the interaction of electric charges and currents with magnetic fields, and the connection between induced potentials and magnetic flux.
- Analyze alternating current circuits, including the production of electromagnetic waves, and discuss the EM spectrum.
- Calculate relativistic transformations such as time dilation, length contraction, and mass dilation.
- Study the quantum theory, photoelectric effect, Compton effect, and the wave nature of matter
- Solve problems involving quantum mechanics, including Heisenberg's Uncertainty Principle and Pauli's Exclusion Principle.
- Demonstrate an understanding of the basic atomic and nuclear models, including atomic spectroscopy and nuclear radioactivity.

GENERAL EDUCATION COMPETENCIES

Piedmont Technical College General Education Competencies for All Graduates:

This course may address one or more of the following General Education Competencies (assessment will be stated when applicable):

Communicate effectively.

Assessment:

Laboratory report

Apply mathematical skills appropriate to an occupation.

Assessment:

Laboratory report

Employ effective processes for resolving problems and making decisions.

Assessment:

N/A

Demonstrate the basic computer skills necessary to function in a technological world.

Assessment:

Laboratory report

To validate proficiency in the general education competencies, students in some programs will be tested using Work Keys.