NORTHWEST FLORIDA STATE COLLEGE

Course Syllabus

Course Name: General Physics with Calculus II
Course Number: PHY2049C
Section: 20504
Credit Hours: 3
Instructor Name: Dr. Christopher Sweeney
Instructor Office Location: 350 Niceville Campus
Instructor Email: sweeneyc@nwfsc.edu

Course Curriculum

This course provides a calculus-based introduction to electromagnetic field theory, the quantitative study of how electrically-charged objects interact. Topics will include electrostatics, Gauss's law, and essentials of passive electric circuit theory. Magnetism and its origins will be treated along with magnetic induction as a source of electromotive force. The coupling between electric and magnetic fields will be discussed in relation to electromagnetic waves. Calculus will be introduced gradually, and only after it has been covered in the standard introductory course in integral Calculus.

Goals

- Students will understand how to determine electrostatic forces on charged particles.
- Students will understand how to use Gauss's law to determine electric fields from charge distributions.
- Students will understand how passive electric circuit components function.
- Students will understand the basis of electromagnetic induction and how it relates to electromagnetic waves.

Objectives

• Students will define terms used to measure and describe physical quantities.
• Students will employ Coulomb's law to the forces on point particles.
• Students will employ critical thinking skills to set up and solve problems involving Gauss's law.
• Students will formulate empirically testable hypotheses derived from the study of physical processes and phenomena.
• Students will apply logical reasoning skills through scientific criticism and argument to separate science from non-science.
• Students formulate and solve problems involving electromagnetic induction and wave phenomena.

Expectations of the Student

Office Hours: The instructor will be available a minimum of six hours a week outside class to answer questions and address concerns of student.

The Use of Canvas as a Learning Management System: All courses utilize Canvas as an online class component. Students can access the course syllabus and their grades at any time and may be required to submit coursework through Canvas. Access to a computer with internet connectivity is therefore required for the course. Students have free access to computers at all campus centers.

Email Response Time of the Instructor: Students can expect responses to email inquiries with one or two business days. (Note: The College is closed on Fridays and on weekends.)

How Student Performance Will be Measured

Student performance will be measured by one or more of the following methods:

- Examinations
- Homework assignments
- Term Paper(s)
- Quizzes