General Physics II

Contents

General Information

Course: General Physics II, 3 credits (3 hours lecture, 3 hours corequisite laboratory)
Semester: Spring 2009
Lecture: 09/SP PHYS 2102.51 and its corequisite
Laboratory: 09/SP PHYS 2202.xx (various)
Prerequisite: Intermediate algebra, trigonometry, and analytic geometry
Corequisite: Physics Laboratory II (PHYS 2202)
Class times: Tuesday & Thursday 6:00 pm-7.50 pm in Becton T -B 208
Lab times: See the Spring 2009 Course Offerings. Meets in Becton 203
Instructor: Adj. Prof. Victoria Malczanek
Office: Becton Hall Room 203.
Office Hours: By Appointment
Telephone: 1-908-405-7731
Email: Victoria_Malczanek@fdu.edu

Course Description

This course sequence satisfies the physics requirement for curricula that require a year of non-calculus physics with a laboratory. This includes most pre-professional options.

Texts and Materials

Main Text: PHYSICS 6/E
Author: Douglas C. Giancoli
Publisher: Pearson Education Inc.
ISBN-0-13-060620-0

Laboratory: Physics Laboratory Manual I
PHYS 2201
Authors: Physics Staff
Publisher: School of Natural Sciences
University College
Fairleigh Dickinson University
Rules, Regulations, Grades

Each student in General Physics must register for a section of laboratory. The laboratory is a mandatory co-requisite.

Attendance in lecture is required. Students are expected to arrive on time for all classes. Cell phones and pagers must be turned off at all times in lab and lecture. For further information, refer to the University Attendance Policy.

There will be an examination every other week on Thursday. Each exam will cover the previous two week’s work. The exams will consist of problems to solve. The problems will be based on the homework assigned. The exams will be closed book. A calculator is mandatory.

The course grade will be determined from the average of the grades from the exams, Mid-Term, Final Exam, Project and on the completeness of the homework handed in.

Fairleigh Dickinson University has an Academic Integrity Policy that each student must read and understand. It also has a formal procedure for appealing a grade. Both documents can be found in the Student Handbook and on the FDU web site. Students should be aware that material downloaded from the Internet is subject to the same conditions as material copied from any other source.

Course Objectives

The overall objectives of General Physics are to present in a quantitative format the primary laws of physics that underlay all of the other sciences.

- Show the way science progresses from observation and classification of phenomena through model building to the development of comprehensive theories that can explain and predict and that can be tested by experiment.

- Discuss the criteria for a successful scientific theory and apply those criteria to the real world.

- Apply the methods and procedures of science through elementary laboratory exercises and observation. Analyze simple experiments and discuss whether they support or confront a theoretical prediction.
Teaching Methodologies/Activities

General Physics is taught as a formal lecture supplemented with some demonstrations and audio/visual materials. Questions are welcomed. Homework is assigned in lecture. The homework will be collected and graded for completeness but not for correctness. Problems that proved difficult will be solved in class.

The student is expected to read the text along with the lectures. The lectures will be easier to understand if you read the text first. There are also several supplements to the text that are available.

Course Outline

PART II Electricity, Magnetism, and Optics
Chapter 16 Electric Charge and Electric Field
Chapter 17 Electric Potential
Chapter 18 Electric Currents
Chapter 19 Direct-Current Circuits
Chapter 20 Magnetism
Chapter 21 Electromagnetic Induction and Faraday's Law
Chapter 22 Electromagnetic Waves
Chapter 23 Light: Geometric Optics
Chapter 24 The Wave Nature of Light
Chapter 25 Optical Instruments

PART III Modern Physics
Chapter 26 The Special Theory of Relativity
Chapter 27 Early Quantum Theory and Models of the Atom
Chapter 28 Quantum Mechanics of Atoms
Chapter 29 Molecules and Solids
Chapter 30 Nuclear Physics and Radioactivity
Chapter 31 Nuclear Energy; Effects and Uses of Radiation
Chapter 32 Elementary Particles
Chapter 33 Astrophysics and Cosmology