



Contra Costa College Course Outline

Department & Number	PHYS-230	Number of Weeks per term	18
Course Title	General Physics II	Lecture Hours per term	90
Prerequisite	PHYS-130 and MATH-290	Lab Hours per term	36
Co-requisite		*HBA per term	
Prerequisite or concurrently	MATH-290	Activity Hours per term	
Challenge Policy		Units	4
Advisory			

***HOURS BY ARRANGEMENT:** Hours per term.

ACTIVITIES: (Please provide a list of the activities students will perform in order to satisfy the HBA requirement):

COURSE DESCRIPTION

Physics 230 is a continuation of Physics 130. The fundamentals of electricity and magnetism will be presented, including study of electric fields, potential, resistance, current electricity, DC networks, magnetism, inductance, alternating current, and electromagnetic waves, and electronics.

COURSE OBJECTIVES

At the completion of the course the student will be able to:

1. Apply Coulomb's Law to electrostatic charge distributions
2. Evaluate the electric field due to a variety of static charge distributions
3. Evaluate the electric potential due to a variety of static charge distributions
4. Solve circuits containing capacitors with dielectrics
5. Analyze and solve DC circuits
6. Demonstrate an understanding of the origin of magnetic fields
7. Apply the Biot-Savart Law to evaluate the magnetic field due to a current element
8. Solve circuits containing inductors
9. Differentiate between materials that are ferromagnetic, paramagnetic, or diamagnetic
10. Solve AC circuits
11. Apply Maxwell's equations to explain the production of electromagnetic waves

COURSE CONTENT: (In detail; attach additional information as needed and include percentage breakdown)

8	%	1. Electrostatics and Coulomb's Law
12	%	2. Electric Fields
8	%	3. Electric Potential
8	%	4. Capacitors and dielectrics
18	%	5. DC circuits
8	%	6. Magnetic Fields
12	%	7. Biot-Savart Law
8	%	8. Inductance
3	%	9. Ferromagnetism, paramagnetism, and diamagnetism
9	%	10. AC circuits
6	%	11. Electromagnetic waves and Maxwell's equations

METHODS OF INSTRUCTION

1. Lecture with demonstrations
2. Classroom discussions and activities
3. Problem Solving
4. Laboratory experiments using electronic equipment
5. Computer applications, including spreadsheets and computer-based digital sampling oscilloscopes

INSTRUCTIONAL MATERIALS

Textbook Title:	Physics for Scientists and Engineers: A Strategic Approach
Author:	Randall D. Knight
Publisher:	Pearson Addison-Wesley
Edition/Date:	2 nd Edition / Copyright 2008

NOTE: To be UC transferable, the text must be dated within the last 5 years OR a statement of justification for a text beyond the last 5 years must be included.

COURSE EXPECTATIONS (Use applicable expectations)

- The average reading level of the textbook is 13.1
- Homework assignments average nine hours per week.
- Laboratory reports average three hours per week.

Outside of Class Weekly Assignments

Hours per week

Weekly Reading Assignments	3
Weekly Writing Assignments	NA
Weekly Math Problems	6
Lab or Software Application Assignments	3
Other Performance Assignments	

STUDENT EVALUATION: (Show percentage breakdown for evaluation instruments)

45	%	Exams
15	%	Homework
15	%	Laboratory Reports
25	%	Comprehensive Final Exam

The percentages vary from instructor to instructor.

GRADING POLICY (Choose LG, CR/NC, or SC)

<input checked="" type="checkbox"/> Letter Grade	<input type="checkbox"/> Pass / No Pass	<input type="checkbox"/> Student Choice
90% - 100% = A	70% and above = Pass	90% - 100% = A
80% - 89% = B	Below 70% = No Pass	80% - 89% = B
60% - 79% = C		70% - 79% = C
50% - 59% = D		60% - 69% = D
Below 50% = F		Below 60% = F
These percentages vary instructor to instructor.		

70% and above = Pass

Below 70% = No Pass

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Date: Spring 2012