Stevens Institute of Technology
PEP 124-A Syllabus

124-A: Physics II for B & T

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Course Web Address:
Course description embedded in Canvas and HW assignments available on Webassign

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Overview

Physics II for Business and Technology provides an introduction to *Electricity and Magnetism*. The objective of this course is to understand technology and nature at its deepest level. This course will provide a new way of thinking how objects interact at a distance. The knowledge and tools learned in this course will help to understand the relevance of physics in Business and Technology world. This course is ideal for students whose ultimate goal is career in modern industry involving both technical and managerial components.

Prerequisites

This course will make use of language of science: mathematics including algebra, trigonometry etc.

Learning Goals

After taking this course, the student will be able to:

- Apply the physical laws and principles to practical problems
- Will learn to reduce the complexities of real-life physical situations to soluble problem using scientific approach
- Learn the art of problem solving using appropriate mathematical equations

Pedagogy

The course will employ lectures, class discussion, in-class reasoning questions, Webassign homework assignments, Lab reports and Recitations. A website for this course is embedded in Stevens canvas environment as well as in Webassign (http://webassign.com).

1. All subscribed student will have access to the canvas site using his or her pipeline account username and password.
2. Access to the Webassign site has been granted with student access kit (part of your books) and please register to the class as soon as it is set up. Students must use the class key **stevens 6808 5513** to enroll in this class. For any support use student tech support http://webassign.com/support/student-support/

All **HW assignments** can be accessed through Webassign. Submission due dates and time will be

posted on webassign. I will also make use of a class email list on canvas for course announcements, study guides etc. You are responsible for making sure your Stevens email account is working or forwarded to a working alternative.

Required Text

College Physics: REASONING AND RELATIONSHIPS, Volume 2, 2nd Edition by **Nicholas Giordano** ISBN-13: 9781111570958. If additional special literature is needed, it will be mentioned in class.

Meetings

Two lectures per week.

1. Tuesday at 8:00-8:50AM,
2. Friday at 8:00-8:50 AM

One Two hour recitation/lab per week. Choose recitation/lab schedule from any of these sections

1. PEP 124LA, T 04:00-05:50PM

2. PEP 124LB, M 08:00- 09:50AM

Attendance is mandatory at all lectures and lab. Attendance will be added into your class participation grade.

Computers

You are encouraged to make certain calculation, graphs, spreadsheets with the computer. Use of Scientific calculator is allowed during Quizzes.

Quiz Schedule

Three Quizzes during the semester. The syllabus has been divided into three major fields of Physics you will learn.

Quiz 1	Electricity	Friday	16-Feb
Quiz 2	Magnetism	Friday	23-Mar
Quiz 3	Optics	Friday	20-Apr

Lab Schedule

	PEP 124LA	PEP 124 LA	PEP 124LB	PEP 124 LB
	Tuesday	Lab Report	Monday	Lab Report
	4:00-5:50 AM	Due on	8:00-9:50 AM	Due on
Lab1	7-Feb	14-Feb	6-Feb	13-Feb
Lab2	28-Feb	7-Mar	27-Feb	6-Mar
Lab3	28-Mar	4-Apr	27-Mar	3-Apr
Lab4	11-Apr	18-Apr	10-Apr	17-Apr

Grading

The course will emphasize on the following categories for your overall grades:

1. Class Participation - To enhance the learning experience, all students are expected to participate in class lectures and recitations/labs. **Attendance at the lecture will be checked and you will have to initial a sign-in sheet in Lab/Recitation .**

2. Technology presentation – Each student will team up with another student or present individually a technology topic relevant to his/her majors. The physics and the business aspect of a particular technology will be presented by students. The topics such as DNA fingerprinting, MRI, Spectrophotometer, Atomic clocks etc describing the contents of *Physics II* syllabus will be encouraged.

3. Homework – Homework assignments must be completed by the required date and submitted via Webassign. Webassign will compute your weighted score of HW assignments and add to final score. **Late submissions will incur penalty.**

   a) **1st missed deadline will have 20% grade cut on unsubmitted work.**
   b) **2nd missed deadline will have 50% grade cut on unsubmitted work.**
   c) **No more further extensions**

4. Quizzes – **Three Quizzes** will be given during the semester. Quizzes will be graded and returned within one week to you. Quiz scores will be uploaded to your Webassign account.

5. Lab Reports – Your TA will conduct **four labs** in semester during weekly recitations. Lab reports are due in one week time.

6. Final Exam – The final exam will be in class. The schedule will be posted on the website once finalized by registrar.

7. The grading categories are as shown below:

1. Class Participation	5%
2. Technology Presentation	5%
3. Homework	25%
4. Quizzes	20%
5. Lab Reports	15%
6. Final Exam	30%
TOTAL	**100%**

At the end of the semester, we add all these components up, based on your actual scores and weighted by the above factors. Your final grade is determined by the final score according to the following table:

Score range (%)	Letter grade
> 95	A
90-94	A-
87-89	B+
83-86	B
80-82	B-
76-79	C+
70-75	C
67-69	C-
63-66	D+
60-62	D
<60	F

PEP 124 LESSON PLAN
SPRING 2017

LEC	DAY	DATE	CH	TITLE		LABS
1	Fri	20-Jan	17	Electric Forces and Fields	Coulombs Law	
2	Tue	24-Jan	17	Electric Forces and Fields	Electric Field	
3	Fri	27-Jan	17	Electric Forces and Fields	Gauss Law	
4	Tue	31-Jan	18	Electric Potential	Epotential & EPE	
5	Fri	3-Feb	18	Electric Potential	Capacitors & Dielectrics	
6	Tue	7-Feb	19	Electric currents & circuits	Ohm's Law and Resistor Ckts	Equipotential Lines
7	Fri	10-Feb	19	Electric currents & circuits	Kirchoff's Laws, Capacitor combinations	
8	Tue	14-Feb		REVIEW QUIZ 1		REVIEW QUIZ 1
9	Fri	17-Feb	20	Magnetic fields and forces	Magnetic force on moving charge	QUIZ 1
11	Tue	21-Feb	20	Magnetic fields and forces	Magnetic force on an electric current and calculating Mfield	
10	Fri	24-Feb	21	Magnetic Induction	Faradays Laws	
12	Tue	28-Feb	21	Magnetic Induction	Lenz's Law and Inductance, energy stored in Magnetic field	Resistor Lab
13	Fri	3-Mar	22	AC ckts. & machines	RMS Voltage	
14	Tue	7-Mar	22	AC ckts. & machines	Phasors, LC ckt.,Reactances, Impedances	
15	Fri	10-Mar	23	Electromagnetic waves	EM spectrum	
	Tue	14-Mar		SPRING BREAK	SPRING BREAK	SPRING BREAK
	Fri	17-Mar		SPRING BREAK	SPRING BREAK	SPRING BREAK
16	Tue	21-Mar		REVIEW QUIZ 2		REVIEW QUIZ 2
18	Fri	24-Mar	23	Electromagnetic waves	Doppler's effect, Polarizer	QUIZ 2
17	Tue	28-Mar	25	Wave optics	Interference	Interference Lab
19	Fri	31-Mar	25	Wave optics	Diffraction	
20	Tue	4-Apr	24	Geometrical Optics	Lens maker's formula	
21	Fri	7-Apr	26	Application of Optics		
22	Tue	11-Apr	27	Relativity		Diffraction Lab
	Fri	14-Apr		GOOD FRIDAY SCHOOL CLOSED		
23	Tue	18-Apr		REVIEW QUIZ 3		REVIEW QUIZ 3
24	Fri	21-Apr	28	Quantum Theory	Concepts of Quantum Mechanics	QUIZ 3
25	Tue	25-Apr	29	Atomic Theory	Flourescent Lights	
26	Fri	28-Apr	30	Nuclear Physics	Decays of alphs, beta, gamma. Radioactivity, Fission, Fusion	
27	Tue	2-May	30	Nuclear Physics	Decays of alphs, beta, gamma. Radioactivity, Fission, Fusion	
28	**Thur**	**4-May**	**31**	**Physics in 21st Century & FINAL REVIEW**	**Relevance in Business**	

5-17MAY **FINAL EXAM**