El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA   **Physics**

COURSE RUBRIC AND NUMBER   **PHYS 2326**

COURSE TITLE   **Engineering Physics II**

COURSE CREDIT HOURS   **3**   **3**   :   **0**
                              Credits   Lec   Lab

I.   Catalog Description

Principles of physics for science, computer science, and engineering majors, using calculus, involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics. **Prerequisite: PHYS 2325 and 2125 MATH 2314. Corequisite: PHYS 2126. (3:0).**

II.   Course Objectives

Upon satisfactory completion of this course, the student will be able to:

A.   State Coloumb's Law and solve problems about it.
B.   State Gauss' Law and use it to solve problems.
C.   Calculate electric field and potential and solve problems dealing with capacitors.
D.   Solve electric circuit problems, including the use of Kirchhoff's rules and Ohm's Law.
E.   State the Biot-Savart Law and Ampere's Law and solve problems about them.
F.   Use Faraday's Law and Lenz's Law to solve problems dealing with magnetism.
G.   Define magnetic field magnetic intensity, magnetic susceptibility, magnetic permeability and relate them to problem involving paramagnetism, diamagnetism and ferromagnetism.
H.   Solve problems involving alternating current circuits.
I.   State Maxwell's equations.
J.   Use geometric optical techniques and equations to solve problems of image production.
K.   Use Snell's law to solve problems of light transmission.
L.   State conditions for interference and diffraction of light and solve problems about them.

III.   THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:
1.   Articulate the fundamental concepts of electricity and electromagnetism, including electrostatic potential energy, electrostatic potential, potential difference, magnetic field, induction, and Maxwell's Laws.
2.   State the general nature of electrical forces and electrical charges, and their relationship to electrical current.
3.   Solve problems involving the inter-relationship of electrical charges, electrical forces, and electrical fields.
4.   Apply Kirchhoff's Laws to analysis of circuits with potential sources, capacitance, and resistance, including parallel and series capacitance and resistance.
5.   Calculate the force on a charged particle between the plates of a parallel-plate capacitor.
6.   Apply Ohm's law to the solution of problems.
7.   Describe the effects of static charge on nearby materials in terms of Coulomb's Law.
8.   Use Faraday's and Lenz's laws to find the electromotive forces.

Revised by Discipline: Fall 2012 (next revision in 3 years)

9.   Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
10.   Articulate the principles of reflection, refraction, diffraction, interference and superposition of waves.
11.   Solve real-world problems involving optics, lenses, and mirrors.

IV.   Evaluation

A. Preassessment
There is no preassessment for this course.

B. Postassessment
The scheduling of examinations, homework, and quizzes will be the sole prerogative of the instructor. The manner, frequency, and extent of these instruments will be indicated to the student in the course syllabus that is distributed at the beginning of the semester. The philosophy of the college endorses frequent evaluation.

C. Remediation
The instructor may provide a student with a means of improving a grade. The timing, form, and method of remediation will be determined by the instructor and included in the course syllabus.

D. Grading
All grading will follow current EPCC Catalog standards. The assignment of letter grades to percent scores obtained in various class activities will be determined by the instructor and included in the course syllabus.

V.   Disability Statement (American with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI.   6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.