

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Physics</u>		
COURSE RUBRIC AND NUMBER	<u>PHYS 1101</u>		
COURSE TITLE	<u>General Physics Laboratory I</u>		
COURSE CREDIT HOURS	<u>1</u>	<u>0</u>	<u>3</u>
	Credits	Lec	Lab

I. Catalog Description

Accompanies PHYS 1301, College Physics I laboratory-based course. Laboratory activities will reinforce fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; emphasis will be on problem solving. **Corequisite: PHYS 1301. (0:3). Lab fee.**

II. Course Objectives

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

- A. Experiment, collect data, conclude, and report about various mechanical systems (in both linear and rotational motion).
- B. Simulate one- and two-dimensional motion scenarios using provided materials and equipment to calculate displacement, velocity, and acceleration of different systems.
- C. Duplicate free-fall scenarios to apply Newton's three laws of motion.
- D. Observe, calculate, and report about the application of work, energy, and power.
- E. Create different mechanical systems to be able to manipulate physical characteristics of measurable frequency, wavelengths, and periods.
- F. Identify conservative and non-conservative forces in simulated situations to find the energy changes.
- G. Duplicate various collision scenarios to calculate and report changes in momentum.
- H. Observe and report elastic and inelastic collisions in various situations.
- I. Calculate the center of mass of different objects for different systems to solve problems.
- J. Experiment, observe, and report changes in various circular motion scenarios.
- K. Observe and report the effects of changes in temperature and heat in relation to thermodynamic laws.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
2. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
3. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
4. Apply Newton's laws to physical problems including gravity.

5. Solve problems using principles of energy.
6. Describe the components of a wave and relate those components to mechanical vibrations, sound and decibel level.
7. Use principles of impulse and linear momentum to solve problems.
8. Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.
9. Solve problems involving rotational and linear motion.
10. Demonstrate an understanding of equilibrium, including the different types of equilibrium.
11. Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.
12. Solve problems using the principles of heat and thermodynamics.
13. Solve basic fluid mechanics problems.

IV. Evaluation

A. Preassessment

There is no preassessment for this course.

B. Postassessment

The scheduling of laboratory exercises will be the sole prerogative of the instructor. This 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 (Americans 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 Room C-112 (831-2426); TM Room 1400 (831-5808); RG Room B-201 (831-4198); NWC Room M-54 (831-8815); and MDP Room 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.