

UNIVERSITY OF PUERTO RICO
RIO PIEDRAS CAMPUS
COLLEGE OF NATURAL SCIENCES
DEPARTMENT OF PHYSICS
UNDERGRADUATE PROGRAM

Title: Laboratory for University Physics I

Code: PHYS 3013

Number of Credits: 1

Prerequisites: PHYS 3011 taken concurrently

Corequisite: PHYS 3011

Description

These are the laboratory courses that accompany the lecture courses PHYS 3011. Three hours of laboratory work per week.

Objectives

The student will support the Objectives of the P3011 class by showing the connection between theory and experiment

Course Content

Topic	Assigned time (hours)
1. Introduction. Safety rules.	3
2. Introduction to Motion	3
3. Uniformly Accelerated Motion	3
4. Vectors	3
5. Projectiles	3
6. Newton's Second Law	3
7. The Coefficient of Friction	3
8. Centripetal Force	3
9. Lab Exam	3
10. Conservation of Energy	3
11. Collisions in One Dimension	3
12. Collisions in Two Dimension	3
13. Moment of Inertia	3
14. Lab Repositions	3
15. Final Projects	3
Total hours	45 contact hours

Instructional Strategy

The sections lecture class and laboratories are coordinated so that, although different professors give the instruction, students receive basically the same material. As well, the lecture and laboratory are coordinated with each other so that the student is introduced to the interaction between theory and experiment. At present, one professor acts as coordinator of the lecture and other as coordinator of the laboratory.

Coordination of the lecture involves meeting periodically with the lecturers to assure that a uniform progress is made and to make adjustments in the schedule. This is necessary due to the many unexpected interruptions in the schedule with occur in Puerto Rico...Hurricanes, strikes etc.

Coordination of the laboratory is a more complex situation. Most of the laboratory sections as given by Graduate Students who are Teaching Assistants. We have found that they need considerable training in how to present the material. This is accomplished by having them work through each laboratory prior to giving their class. This is done under the supervision of the coordinator, once a week, in a three hours training period.

The strategy of instruction is to combine, lecture, laboratory experiment, audiovisual material, and demonstrations to convey the content of the course.

The students are assigned homework problems from the textbook to give them experience in problem solving and prepare them for the examinations.

Minimum Require Facilities

Laboratory room, PC Computers, printer, interfaces and sensors, and laboratory equipment.

Student Evaluation

Students do individual laboratory reports on the experiments. In addition students take one lab exam and discussion of final project.

Grading System

Standard A to F Grading System, based on lab reports, quizzes, exam and final project.
100-90% = A, 89-80% = B, 79-70% = C, 69-60% = D, 59-0% = F.

Bibliography

Giancoli, D. C. 2008. Physics for Scientists and Engineers with Modern Physics, 4/e, Vol. I. Upper Saddle River, New Jersey: Pearson Prentice Hall.

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