

Saint Louis University, Madrid Campus
Faculty: Science and Engineering

Professor: Francisco Prieto, Ph.D.

Course name: Physics I Lab.

Course code: PHYS-132

Semester: Fall 2010

Credit Hours: 1 credit

Lecture room: Physics Lab PAH-21

Email: fprieto@slu.edu

Office hour: Monday 12:00 – 13:00 and upon request

Add/Drop period: Last day to drop: Sept. 14. Last day to drop with W: Oct. 29

Prerequisites: MATH-120. Must enroll also in PHYS-131.

Course Description:

The course includes eleven lab sessions, which are described in the Laboratory Sessions Handbook. Lab scripts are available for all experiments and are stored in the University bookstore. At the beginning of the course students must purchase the Handbook, with the purpose of being able to prepare each lab session before the class. Students will be organized into groups. The number of students per group will depend on the number of students registered in the course: three is the ideal.

Before each laboratory class, students must read the lab manual and answer the pre lab questions that can be downloaded in Blackboard (<https://myslu.slu.edu>). The answers must be handed in to the professor before starting the class.

In the Laboratory the student must record the complete lab session in the Lab notebook. The student will note down all measurements and procedures performed; they will analyze the measurements to check their validity, and will record everything that is needed to write a report about the experiment. The report will be individual and the submission dates will be one week after the completion of the lab session.

Course Objectives

a) General Objectives of the laboratory.

The laboratory constitutes a link between the ideas developed theoretically and real world. In this sense the student complements and consolidates the knowledge acquired in the theoretical classes with the work developed in the laboratory. The laws and Principles of Physics are tested in the different lab sessions during the course.

We could define experimental Physics as a science of observation, measurement and method. With this in mind we will summarize the general aims of the laboratory in the following points:

- 1.- **Observation:** To initiate students into observation techniques and to teach them to think critically.

- 2.- **Measurement.** An introduction to the concepts of accuracy, precision, reliability, etc. An introduction to the theory of errors and measuring instruments.
- 3.- **Method.** The Scientific Method as a work tool: to develop a work plan to tackle the study of a specific physical phenomena; to take data in the Laboratory; to develop and analyze the results from the obtained measurements; to obtain conclusions; etc.
- 4.- **Teamwork.** The lab sessions will be developed in groups of 3 to 5 students. These groups constitute an ideal place to develop the technique of teamwork: distribution of chores and functions; to learn to listen to and to express opinions; to be enriched with the ideas of the group; etc.

Textbook:

Physics I Laboratory Sessions Handbook.
Authors: Francisco Prieto

Grading system

The work undertaken in the practical sessions is assessed by continuous assessment of the lab notebooks, the marks of all the lab reports, the marks of the pre-lab questions, and the marks of the exams.

1. Attendance

You should sign-in at the beginning of each laboratory session and are required to stay either until the end of the lab session or until all measurements and analysis have been recorded in your laboratory notebook. You may sign out only after the approval of a lab demonstrator.

2. Continuous assessment of lab notebook

Lab notebooks will be checked at the end of each practical session. Only when the results are satisfactory will the students be allowed to proceed to the next experiment. The lab notebooks will be marked at the end of each semester.

1st Mid-Term Grade – 20% of the marks

Final Grade – 15 % of the marks

3 Assessment of experimental write-ups

Reports of the experiments should be handed in before the start of the new lab session. If reports are handed in late, but within one week of the deadline, then 20% of the marks will be forfeit. Write-ups handed in more than one week after the deadline will be marked for the student's information but these marks will not count in the module assessment. Every effort will be made to return the marked write-up within a period of two weeks.

1st Mid-Term Grade – 35% of the marks

Final Grade – 30 % of the marks

4. Assessment of pre-lab questions

At the beginning of the class the student must give to the instructor the answers to the questions that can be downloaded in the course Blackboard.

1st Mid-Term Grade – 5% of the marks

Final Grade – 5 % of the marks

5. Assessment by exams – 30% of the marks

Two exams will be done: one halfway through the course (1st Mid-Term Exam) and another at the end (Final Exam) about materials related with the work done. Due exams are taken individually, not in groups. Exams will consist of a set of theoretical questions and an experimental exercise related to the sessions covered in class.

1st Mid-Term Grade – 40% of the marks

Final Grade – 50 % of the marks (25% for the 1st Mid-Term and 25% for the Final)

Grading Scales:

100 < A < 95%,

95% < A- < 90.5%

90.5% < B+ < 84.5%

84.5% < B < 80%

80% < B- < 75.5%

75.5% < C+ < 69.5%

69.5% < C < 65%

65% < C- < 60.5%

60.5% < D < 50%

F < 50%

POLICY STATEMENT ON ACADEMIC INTEGRITY

The following is a statement of minimum standards for student academic integrity at Saint Louis University.

The University is a community of learning, whose effectiveness requires an environment of mutual trust and integrity, such as would be expected at a Jesuit, Catholic institution. As members of this community, students, faculty, and staff members share the responsibility to maintain this environment. Academic dishonesty violates it. Although not all forms of academic dishonesty can be listed here, it can be said in general that soliciting, receiving, or providing any unauthorized assistance in the completion of any work submitted toward academic credit is dishonest. It not only violates the mutual trust necessary between faculty and students but also undermines the validity of the University's evaluation of students and takes unfair advantage of fellow students. Further, it is the responsibility of any student who observes such dishonest conduct to call it to the attention of a faculty member or administrator.

Examples of academic dishonesty would be copying from another student, copying from a book or class notes during a closed-book exam, submitting materials authored by or editorially revised by another person but presented as the student's own work, copying a passage or text directly from a published source without appropriately citing or recognizing that source, taking a test or doing an assignment or other academic work for another student, tampering with another student's work, securing or supplying in

advance a copy of an examination without the knowledge or consent of the instructor, and colluding with another student or students to engage in an act of academic dishonesty.

Where there is clear indication of such dishonesty, a faculty member or administrator has the responsibility to apply appropriate sanctions. Investigations of violations will be conducted in accord with standards and procedures of the school or college through which the course or research is offered. Recommendations of sanctions to be imposed will be made to the dean of the school or college in which the student is enrolled. Possible sanctions for a violation of academic integrity include, but are not limited to, disciplinary probation, suspension, and dismissal from the University.

Approved by the Council of Academic Deans and Directors, September 20, 2000.

Policies:

- (1) Students are encouraged to participate in class discussions and to ask questions.
- (2) Announcements may be made during the semester.
- (3) Useful information for the course may be found on the web: <https://myslu.slu.edu>
- (4) Syllabus, reading and homework problems are subject to change.
- (5) Students are responsible for all lecture material, handouts, homework and assigned reading.
- (6) Students are expected to attend all classes unless a reasonable excuse is given.
- (7) Make up exams are not given. Students who legitimately miss an exam, due to a doctor's visit or family emergency must provide written documentation of the circumstances. A letter from the university counselor is accepted. Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams. Missing more than one exam results in an F grade.
- (8) **Students with Disabilities: Any student who qualifies for special accommodations, due to presence of a disability, and feels it necessary to utilize them in order to meet the requirements of this course-as outlined in the syllabus, should contact Counseling/Disability Services. Please phone the office at 91 554-5858 (Ext. 230), or send an e-mail to vandrew1@slu.edu. Students may also stop by the Counseling/Disabilities Services office in the Manresa building. Confidentiality will be observed in all inquiries.**

Course Outline:

Week	Topic
1	Introduction.
2	Session 1: Measurement and uncertainty.
3	Session 2: Motion in one dimension.
4	Session 3: Force and Newton's law.
5	Session 4: Friction

6	1st Mid Term Exam
7	Session 5: Centre of gravity
8	Session 6: Periodic motion: the spring.
9	Session 7: Simple pendulum.
10	Session 8: Physical pendulum.
11	Session 9: Combined translational and rotational motion.
12	Session 10: Surface tension
13	Session 11: Archimedes' principle.
14	Final Exam

Examinations:

First Mid-term Examination: 18 October 2010 (16:00)

Final Examination: 13 December 2010 (16:00)