



## PHYS 164: Engineering Physics II Lab Syllabus

**Professor:** Javier Romero

**Credit Hours:** lab: 1 credit

**Lecture room:** Physics Laboratory

**Email:** jromeroa@madrid.slu.edu

**Office hour:** Friday: 10:00 – 12:20

**Prerequisites:** MATH-143, PHYS-161, PHYS-162. Must enroll also in PHYS-163.

### Course Objective

The laboratory constitutes a link between the ideas developed in the “theory” subject and reality. In this sense the student complements and consolidates the knowledge acquired in the theoretical class due to the work developed in the laboratory. This course introduces students to the fundamentals of electromagnetism and optics through the detailed consideration of the basic laws governing them.

### Course description

Study of electrostatics: electric field and capacitance. Study of laboratory equipment (oscilloscope, voltage generator, digital multi-meter). Currents, resistance and study of simple DC circuits. Magnetism. Elementary optics.

### Textbook

Engineering Physics II Laboratory Sessions Handbook.  
Francisco Prieto, Ricardo Abad, Taieb Gasmí  
Ed. Fall 2010

### References

D. Halliday, R. Resnick, & K.S. Krane,  
*Physics. Vol. II. Extended Version*,  
4th. Ed. , John Wiley, Chichester, England, 1992.

### 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 analyses 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.

1<sup>st</sup> Mid-Term Grade – 20% of the marks

2<sup>nd</sup> Mid-Term Grade – 30% 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.

1<sup>st</sup> Mid-Term Grade – 35% of the marks

2<sup>nd</sup> Mid-Term Grade – 65% 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 Web-CT.

1<sup>st</sup> Mid-Term Grade – 5% of the marks

2<sup>nd</sup> 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 (1<sup>st</sup> 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.

1<sup>st</sup> Mid-Term Grade – 40% of the marks

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



## Grading Scales

95% < A ≤ 100%,  
90.5% < A- ≤ 95%  
84.5% < B+ ≤ 90.5%  
80% < B ≤ 84.5%  
75.5% < B- ≤ 80%  
69.5% < C+ ≤ 75.5%  
65% < C ≤ 69.5%  
60.5% < C- ≤ 65%  
50% < D ≤ 60.5%  
F ≤ 50%

## Academic Honesty

Cheating in class on quizzes and tests is a serious offense. Any student caught cheating will receive an F for the course. A student may also be suspended for one semester. For more information concerning academic dishonesty, refer to the Code of Student Academic Responsibility:

<http://www.slu.edu/provost/Adobe%20Pages/Academic%20Integrity%20Policy.pdf>

## 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:  
<http://blackboard.madrid.slu.edu>
- (4) Syllabus, reading and homework problems are subject to change.
- (5) Students are responsible for all lecture material, handouts and assigned reading.
- (6) **It is mandatory to attend all classes unless a reasonable excuse is given.** Any unexcused absences in excess of **3** will result in a lowered grade and even in automatic failure in the course.
- (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](mailto: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:**

<u>1<sup>st</sup> Session</u>	Course contents explanation. Teamwork distribution.
<u>2<sup>nd</sup> Session</u>	Digital multimeter
<u>3<sup>rd</sup> Session</u>	Electric charge and Coulomb's law
<u>4<sup>th</sup> Session</u>	Equipotential lines
<u>5<sup>th</sup> Session</u>	The oscilloscope
<u>6<sup>th</sup> Session</u>	The parallel-plate capacitor
<u>7<sup>th</sup> Session</u>	Ohm's law
<u>8<sup>th</sup> Session</u>	Earth's magnetic field
<u>9<sup>th</sup> Session</u>	Magnetic force on a current carrying conductor
<u>10<sup>th</sup> Session</u>	Magnetic induction
<u>11<sup>th</sup> Session</u>	Thomson's ring
<u>12<sup>th</sup> Session</u>	Geometrical optics

### **Examinations:**

First Mid-term Examination.

Final Examination.