Physics 303 Course Information

General

Physics 303 is a laboratory-oriented course designed to provide students with an introduction to electronics and related instrumentation used in modern physics laboratories. Topics to be covered include: basic electronics with an introduction to transistor and op-amp circuitry and an introduction to physical computing using LabView software and Arduino microcontrollers.

Prerequisite

Physics 232, or permission of instructor.

Lectures/Lab

Monday and Wednesday, 11 am – 12:50 pm, room 224 OCNPS

Website

Course information will be available on blackboard at www.blackboard.odu.edu

Required Material

- Bound Laboratory Notebook (but not spiral bound)
- USB memory stick (to store oscilloscope files)

Useful Resources

- “The Electronics Companion,” by Anthony Craig Fischer-Cripps, 2nd Ed.
- “The Art of Electronics,” by P. Horowitz and W. Hill
- “Student manual for the Art of Electronics,” by T.C. Hayes and P. Horowitz
- “An Introduction to Error Analysis” by John Taylor
- “Guide to LaTeX” by Helmut Kopka

Instructor

Dr. Charles I. Sukenik
Office: 2100D PSB (Physics Sciences Building)
Office Telephone: 683-3471
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Office Hours: See Blackboard and by appointment

Overview

Students will perform a series of laboratory exercises in areas of basic electronics, LabView computer programming and computer interfacing to instrumentation. At the end of the semester, students will do a final project that will combine their knowledge of these newly acquired skills.

Exams

There are no regular exams. Students are required to keep a detailed laboratory notebook and submit laboratory reports on time. In lieu of a final exam, students will do a final project. Details about the final project will be available later in the semester.

Lab Notebook

You are required to have a bound laboratory notebook for all lab activities. Your lab notebook should be a neat (readable) record of everything you do in class. Each page must be dated. Your instructor will check to see that you have the notebook with you in class and that you are using it to record your notes and observations. It is not acceptable to take notes on loose pages and then copy them into your lab notebook. You should never rip pages out of your laboratory notebook!
Homework

Homework will consist of reading assignments, problems from the text, performing calculations and answering questions related to laboratory exercises.

Grades

A grade will be assigned at the end of the course and will be based on:

- Laboratory Notebook and Reports: 60%
- Laboratory Performance: 10%
- Homework Assignments: 10%
- Final Project: 20%

Attendance

Attendance is mandatory. A portion of the Laboratory Performance grade will be based on attendance. The work done in the laboratory must be the basis for the written lab reports. More than two unexcused absences can result in a failing grade.

University Honor Code

You are expected to conform to the University Honor Code in all aspects of your conduct in this course. You are encouraged to work together on laboratory and homework exercises and help each other to understand the material. However, your written lab reports and homework must be entirely your own work. Any cases of suspected academic dishonesty will be processed according to the policy in the Undergraduate Catalog.

Lab Reports

A lab report must be submitted for each laboratory exercise, unless instructed otherwise. At a minimum, the report must contain the following information: Name of the lab, name of student, name of lab partner, date, purpose of lab and introduction to the relevant concepts, summary of procedure followed (with photo and/or diagram of circuits), results, including answers to questions in the text of the lab and a summary of what was learned or concluded. The lab report must be formatted neatly with attention to grammar and spelling. You are required to prepare your report using LaTex. Each student must submit his/her own report. Due dates/times for each lab report will be posted on Blackboard; generally, lab reports will be due one week from the day the lab module was finished in class. There will be a penalty for late reports.

Physics 303 Rules

1. Attend each lab. Be on time. Do not leave early.
2. No food or drink permitted in the lab room.
3. No cell phone use in the classroom, except for course-related activities.
4. Work in groups of two.
5. Both lab partners must fully participate in all lab activities.
6. At the end of each lab module, clean up your station and return electronic components that are no longer needed to their original location.

Accommodation

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.