

UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS and ASTRONOMY
COURSE OUTLINE

1. Physics 397, Applied Physics Laboratory I

L01: MWF 15:00-15:50, SS 06

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Blackboard course name: Phys 397 L01 – (Fall 2012) – Applied Physics Laboratory 1

- 2. PREREQUISITES:** Prior completion of or concurrent registration in Physics 223 or 255 or 259 or 355 is highly recommended.
- 3. GRADING:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

40 % Laboratory Reports
30 % Assignments
15 % Final laboratory exam (To be held in last scheduled Laboratory session)
15 % Final Exam (To be scheduled by the Registrar)

A passing grade on the final examination is required in order to pass the course.

Percentage grades will be given for all elements of term work and examinations in Physics 397. A weighted course percentage will be calculated for each student after the final exam is written. A table of conversion from final course percentage to final course letter grade will be published on the Phys 397 Blackboard site later in the term.

- 4. Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: <http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html>. It is the student's responsibility to familiarize himself/herself with these regulations. See also <http://www.ucalgary.ca/pubs/calendar/current/e-3.html>.
- 6. TEXTBOOK:** There is no required textbook for this course.
- 7. EXAMINATION POLICY:** All examinations are closed book. A formula sheet will be provided. Programmable calculators are permitted. Students are encouraged to read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.
- 9.** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See **also** <http://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

Department Approval _____ Date _____

Associate Dean's Approval for
out of regular class-time activity: _____ Date: _____

11. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **ACADEMIC MISCONDUCT** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) to inform yourself of definitions, processes and penalties
- (b) **ASSEMBLY POINTS in case of emergency during class time.** Be sure to **FAMILIARIZE YOURSELF** with the information at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.
- (c) **ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>
Disability Resource Centre: <http://www.ucalgary.ca/drc/>
- (d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **FREEDOM OF INFORMATION AND PRIVACY:** This course will be conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.** For more information see also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **STUDENT UNION INFORMATION:** VP Academic **Phone:** 220-3911 **Email:** suypaca@ucalgary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website <http://www.su.ucalgary.ca/home/contact.html>.
Student Ombudsman: <http://www.su.ucalgary.ca/services/student-services/student-rights.html>
- (i) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

Course Syllabus

Basic laboratory electronics, vacuum systems, and optical devices. Introduction to experimental control, data collection, and analysis. Fundamentals of error analysis and error propagation.

Laboratory and Tutorial Schedule for Fall 2012

Laboratory Exercise		Tutorial Exercise	
11/09	• No Laboratory Exercise	14/09	• Using a DVM to measure R, V, I • Connecting circuits
18/09	• Voltage Dividers and Voltage Sources	21/09	• Using an oscilloscope • AC Voltage measurements
25/09	• AC Measurements and Sources	28/09	• Data analysis using spreadsheets
02/10	• Traveling Waves	05/10	• Accessing the literature using the UofC Library's resources
09/10	• The Hall Effect and Magnetic Hysteresis	12/10	• RC filters
16/10	• RLC Resonant Circuits	19/10	• Interferometers
23/10	• Laser Beams	26/10	• Speed of Light Part I
30/10	• Spectroscopy	02/11	• Speed of Light Part II: Even Faster
06/11	• Fourier Series	09/11	• Tutorial
13/11	• No Laboratory Exercise	16/11	• Nuclear Measurements
20/11	• X-Ray Diffraction	23/11	• Vacuum components and systems
27/11	• Vacuum Technology	30/11	• Laboratory Exam Review
04/12	• Laboratory Exam	07/12	• Research Laboratory Tours