

UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS and ASTRONOMY
COURSE OUTLINE

1. **Physics 255: Electromagnetic Theory I**

Lecture Sections:

L01: MWF, 10:00-11:00, ST 132, **Instructor: R.I. Thompson**, SB605C, 403 220-5407, rthompo@ucalgary.ca, Office Hours: tba

Course websites: Physics 255 L01 on Blackboard and PHYSICS 255 University of Calgary on www.smartphysics.com.

Departmental Office: SB 605, 403 220-5383

2. **PREREQUISITES:** Physics 211 or 221 or 227; Applied Math 217 or Math 249 or 251.

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:

Pre-lectures	5%	
Assignments	15%	
Lab and labatorial exercises	15%	
Midterm Test #1	10%	(In class exam)
Midterm Test #2	15%	(In class exam)
Final Examination	40%	(To be scheduled by the Registrar)
TOTAL	100%	
Student Response Systems		up to 2% bonus marks may be available

Percentage grades will be given for all elements of term work and examinations in Physics 255. 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 255 Blackboard site.

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:** SmartPhysics, by T. Selzer, M. Selen, and G. Gladding, published by W.H. Freeman, 2011.

7. **EXAMINATION POLICY:** Students will be provided with an equation sheet for midterms and final examinations. Calculators are permitted. Students are encouraged to read the Calendar, Section G, on Examinations: <http://www.ucalgary.ca/pubs/calendar/current/g.html>.

8. The SmartPhysics educational system involves on-line materials in addition to the Textbook. These on-line materials will form part of the course content and of the course grading. There is a fee to access the on-line SmartPhysics content.

9. In this course, the quality of the student's writing in laboratory reports and presentations 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

Jan 6 / 12

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:** suvpaca@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

Physics 255: Electromagnetic Theory I

Electricity

Coulomb's Law; Electric fields, flux, and field lines; Gauss' Law, Electric Potential and Potential Energy.

DC Circuits

Conductance, Capacitance and Capacitors; Kirchhoff's Rules; RC Circuits; Lab Instrumentation;

Magnetism

Magnetic forces and torques; Biot-Savart Law; Ampere's Law, Motional EMF; Faraday's Law

AC Circuits

Induction; RL, LC, and RLC Circuits, AC Circuit Theory