PHYS 216 Course Outline, September 2017

Professor: Bob Kowalewski, Elliott 204, x6156, kowalews@uvic.ca
Office hours: TBA
Lectures: TWF 11:30-12:20, Elliott 062
Tutorial: Tue 13:30-14:20, Elliott 062
Labs: Schedule depends on the lab section you enrolled in

Tutorial instructor: TBA
Marker: TBA

The marks will be assigned as follows:

Laboratory work   15%
Quizzes   35%
Final Exam   50%

You must pass the lab section of the course in order to pass the course.

There will be 6 quizzes over the course of the term. Your best 5 quizzes will each count as 7% of your final mark. The quizzes will be written during lecture time (20 minutes per quiz). The quizzes will be based on a homework assignment that you should already have completed. No notes or other materials will be allowed in the quizzes.

Homework will be assigned roughly once per week, but will not be marked. Doing the homework is the best way to prepare for the quizzes. Make sure you understand it, seek help if you don't, and you'll do well in the course.

A 1-hour/week tutorial section is available to help you as you practice solving problems, and to give you an opportunity to ask questions to the tutorial instructor.

The date and time for the final exam will be announced when known. You will be allowed to bring notes – but no electronic resources – into the final exam.

The correspondence between numerical (%) and letter grades will be

A+   >90
A   85-90
A-   80-85
B+   77-80
B   73-77
B-   70-73
C+   65-70
C   60-65
D   50-60
E   40-50 fail, conditional supplemental
F   <40 fail, no supplemental
N   Fail, did not write examination or otherwise complete course requirements by the end of the term or session; no supplemental exam

The text for the course is "University Physics with Modern Physics", 13th or 14th edition by Young and Freedman. We will cover chapters 21-32 in this course. An outline of topics is on Course Spaces: http://coursespaces.uvic.ca/course/view.php?id=2705 and is repeated below.

1. Electric charge and electric field. Basic properties, Coulomb's law, force on a charged particle.
2. Electric flux and Gauss's law. Conceptual and calculational examples.
3. Electric potential and potential difference. Calculating potential, relating electric field and electric potential. Equipotential surfaces. Capacitance and capacitors, dielectrics, energy storage in electric fields.
4. Current and resistance; microscopic model of current flow, simple DC circuits.
5. Magnetic fields, forces on moving charged particles and current-carrying conductors, torque on a current loop, Hall effect.
6. Sources of magnetic field. Biot-Savart law, Ampere's law, Gauss's law for magnetism. Magnetism in materials.
7. Electromagnetic induction. Faraday's law, time varying fields, motional EMF. Lenz's law, induced electric fields, applications. Inductance and inductors. Energy storage in magnetic fields. Inductors as circuit elements. RL, LC and RLC circuits.
8. Alternating current circuits. Sinusoidally varying sources, rms current and voltage, phase lead and phase lag. Complex voltage and current. Power and resonance in AC circuits, filters.
9. Electromagnetic waves. Displacement current, plane waves, power and energy, Poynting vector. Maxwell's equations. Electromagnetic spectrum.

General University Policies

You should be aware of the relevant university policies regarding a respectful and productive learning environment, inclusivity and diversity, discrimination and harassment, student discipline and accommodation of religious observance: http://web.uvic.ca/calendar2013/GI/GUPo.html

Academic Integrity

Please take particular note of the policy on academic integrity: http://web.uvic.ca/calendar2013/FACS/UnIn/UARe/PoAcI.html. I have no sympathy for those who disregard this policy, and will deal seriously with all violations of this policy.