

Department of Science

PC2010 GENERAL PHYSICS III 3.0 (3-0-3) UT(3)

Lectures	M W F	1:00 - 1:50 a.m.	J227
Laboratory	T or W	3:00 - 5:50 p.m.	J103

INSTRUCTOR: Dr. Robert Hunt, P.Eng.

OFFICE: C414

PHONE: 539-2008/532-1338 (GPRC/HOME)

E-MAIL: hunt@gprc.ab.ca

TEXT: Physics. Cutnell & Johnson, 3rd Edition

COURSE CONTENT: Electrostatics, electric fields, Gauss' Law, electric potential, DC and AC circuits, magnetic fields, Ampère's Law, electromagnetic induction, Faraday's Law, electric generators, and quantum concepts.

PRE-REQUISITE: PC 1000/1010, or PC 1080/1090, or PC 1300/1310. MA 1130/1140 or MA 1000/1010, since students are expected to be able to handle simple differentiation and integration.

MARK DISTRIBUTION:

Assignments	15%
Laboratories	20%
Mid-Term Examination	20% (TBA)
Final Examination	45% (TBA) <u>Formula sheet provided</u>

COURSE OUTLINE

Chapter 18	Conductors, insulators, induction, Coulomb's Law, electric field, Gauss' Law.
Chapter 19	Electric potential, electric potential energy, equipotential surfaces, capacitors and dielectrics.
Chapter 20	Emf, Ohm's Law, resistance, power, AC and DC, Series and parallel circuits, Kirchoff's Laws, RC circuits.
Chapter 21	Magnetic forces and magnetic fields, moving charge/motion, torque/forces in current carrying wires, Ampère's Law, magnetic materials.

PC2010 Course Outline

Page 2

- Chapter 22 Induced emf and current, Faraday's Law, Lenz's Law, electric generators, inductance.
- Chapter 23 Capacitors and inductors, RCL circuits, resonance, semi conductors.
- Chapter 29 Wave-particle duality, Heisenberg's uncertainty Principle
- Chapter 30 Bohr atom, hydrogen atom.

LABORATORY COMPONENT

Lab #	Source	Content	Week of
1	Exp. #2	Electrostatic Potentials and Fields	Sept. 7
2	Exp. #3	Capacitance	Sept. 14
3	Exp. #4	Resistance	Sept. 21
4	Exp. #5	Charging and Discharging of a Capacitor	Sept. 28
5	Exp. #6	Measurement of e/m for Electrons	Oct. 5
6	Handout	Magnetic Balance	Oct. 19
7	Exp. #7	Magnetic Fields	Oct. 26
8	Exp. #9	LRC Circuits and Resonance	Nov. 2
9	Exp. #10	The Speed of Light	Nov. 16
10	Handout	Balmer Series	Nov. 23

GRADING GUIDELINES

Percent (Approx.)	Grade
90 - 100	9
80 - 89	8
72 - 79	7
65 - 71	6
57 - 64	5
50 - 56	4
45 - 49	3
26 - 44	2
0 - 25	1

(Cambridge System)

