

Grande Prairie Regional College

F.97

Department of Science

PC2300 ELECTRICITY AND MAGNETISM 3.0 (3-0-3/2) UT(3)

Lectures	M W F	1:00 - 1:50 a.m.	J107
Laboratory	T or W	3:00 - 5:50 p.m.	J103

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<b>INSTRUCTOR:</b>	Dr. Robert Hunt, P.Eng.
<b>OFFICE:</b>	C414
<b>PHONE:</b>	539-2008/532-1338 (GPRC/HOME)
<b>E-MAIL:</b>	hunt@gprc.ab.ca
<b>TEXT:</b>	Fundamentals of Physics. Halliday, Resnick, and Walker (4th or 5th Edition).
<b>COURSE CONTENT:</b>	Electrostatics, electric fields, Gauss' Law, electric potential, capacitance, Ohm's Law, DC circuits, Kirchoff's Laws, magnetic fields, Ampère's Law, electromagnetic induction, Faraday's Law, electric generators, magnetism, Maxwell's Equations and em waves.
<b>PRE-REQUISITE:</b>	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.
<b>MARK DISTRIBUTION:</b>	Assignments 15% Laboratories 15% Mid-Term Examination 20% (TBA) Final Examination 50% (TBA) <u>Formula sheet provided</u>

COURSE OUTLINE

- Chapter 23 Electric charge conductors, insulators, induction, and Coulomb's Law.
- Chapter 24 Electric fields.
- Chapter 25 Gauss' Law.
- Chapter 26 Electric potentials.

## PC2300 Course Outline

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- Chapter 27 Capacitance, parallel and series, energy and dielectrics.
- Chapter 28 Current, resistance, Ohm's Law, energy and power.
- Midterm
- Chapter 29 Emf, current, DC circuits, and Kirchoff's Laws.
- Chapter 30 Magnetic Field, Hall Effect, moving charge/motion and torque/forces in current carrying wires.
- Chapter 31 Magnetic field and force, Ampère's Law and solenoids.
- Chapter 32 Faraday's Law, Lenz's Law, and induction.
- Chapter 33 Inductance, energy of a magnetic field and mutual induction.
- Chapter 34 Magnetism and matter.
- Chap. 37/38 Maxwell's equations and em waves.

### LABORATORY COMPONENT

Lab #	Content	Week of
1	Electric potential	Sept. 15
2	Capacitance	Sept. 29
3	$e/m$	Oct. 20
4	Induction	Nov. 3
5	Magnetic Fields	Nov. 24

### 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)

