Faculty of Engineering

COURSE OUTLINE

ELEC 216 – Electricity and Magnetism
Term – Fall 2016 (201609)


Instructor
Dr. Poman So
Phone: 250-472-4224
E-mail: Poman.So@UVic.CA

Office Hours
Days: Tuesday and Wednesday
Time: 14:30 – 15:30
Location: EOW 417

Instructor Office Hours

Course Objectives
Study the fundamentals of electromagnetics with emphasis on engineering applications.

Learning Outcomes
a) Describe the basic properties of electric and magnetic forces.
b) Calculate the gradient of a scalar function and the divergence and curl of a vector function in any of the three primary coordinate systems.
d) Calculate the resistance, capacitance, and inductance of electromagnetic structures.
e) Apply the phasor-domain technique to analyze steady-state electromagnetic problems.
f) Evaluate the magnetic force and torque on a current-carrying structure due to a magnetic field.

Syllabus
Electric charge, Coulomb's Law, electrostatic forces, electric field, Gauss's Law, electric potential, stored energy. Electric current, conduction in a vacuum and in material media, displacement current, magnetic field of a current, force on a current carrying wire, magnetic induction, electromotive force, energy stored in a magnetic field. Time varying fields. Capacitance, resistance, inductance, and their characterization.

A-Sections: A01 / CRN 11206
Days: TWF
Time: 13:30 – 14:20
Location: ELL 168

B-Sections: B01 — B10
See the class schedule listing at the end of this course outline for details
Location: ELL 129

Required Text
Author: Fawwaz T. Ulaby and Umberto Ravaioli
Publisher: Pearson / Prentice Hall
Year: 2015

Assessment:
Assignments: 10% Due Dates: See CourseSpaces for details
Labs: 20%
Mid-term 10% Date: Tuesday October 18, 2016.
Final Exam 60%
**Note:**
1. Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.
2. Failure to pass the final exam will result in a failing grade for the course.
3. Plagiarism detection software may be used to aid the instructor and/or TAs in the review and grading of some or all of the work you submit (http://www.uvic.ca/library/research/citation/plagiarism/index.php).

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

**There will be no supplemental examination for this course.**

**Note to Students:**
Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair’s Secretary to set up an appointment.

**Accommodation of Religious Observance**
http://web.uvic.ca/calendar2016-09/general/policies.html

**Policy on Inclusivity and Diversity**
http://web.uvic.ca/calendar2016-09/general/policies.html

**Standards of Professional Behaviour**
You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities. https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.

http://web.uvic.ca/calendar2016-09/undergrad/info/regulations/academic-integrity.html

**Course Lecture Notes**
Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.
Class Schedule Listing

Sections Found

Electricity and Magnetism - 11206 - ELEC 216 - A01
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate
Main Campus
Lecture Schedule Type
Face to Face Instructional Method
1.500 Credits
View Catalog Entry

Scheduled Meeting Times

<table>
<thead>
<tr>
<th>Type</th>
<th>Time</th>
<th>Days</th>
<th>Where</th>
<th>Date Range</th>
<th>Schedule Type</th>
<th>Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every Week</td>
<td>1:30 pm - 2:20 pm</td>
<td>TWF</td>
<td>Elliott Building 168</td>
<td>Sep 07, 2016 - Dec 02, 2016</td>
<td>Lecture</td>
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Electricity and Magnetism - 11207 - ELEC 216 - B01
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate
Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

Scheduled Meeting Times

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<th>Instructors</th>
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</thead>
<tbody>
<tr>
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<td>3:30 pm - 6:20 pm</td>
<td>M</td>
<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
<td>Lab</td>
<td>TBA</td>
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Electricity and Magnetism - 11208 - ELEC 216 - B02
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate
Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

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### Electricity and Magnetism - 11209 - ELEC 216 - B03
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
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<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
<td>Lab</td>
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### Electricity and Magnetism - 11210 - ELEC 216 - B04
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

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<tr>
<td>Every Week</td>
<td>11:30 am - 2:20 pm</td>
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### Electricity and Magnetism - 11211 - ELEC 216 - B05
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
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<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
<td>Lab</td>
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### Electricity and Magnetism - 11212 - ELEC 216 - B06
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

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<tbody>
<tr>
<td>Every Week</td>
<td>5:30 pm - 8:20 pm</td>
<td>T</td>
<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
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### Electricity and Magnetism - 11213 - ELEC 216 - B07
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

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<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
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### Electricity and Magnetism - 11214 - ELEC 216 - B08
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate

Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

**Scheduled Meeting Times**

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<tr>
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<td>11:30 am - 2:20 pm</td>
<td>M</td>
<td>Elliott Building 129</td>
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### Electricity and Magnetism - 11215 - ELEC 216 - B09

Electricity and Magnetism - 13925 - ELEC 216 - B10
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate
Main Campus
Lab Schedule Type
Face to Face Instructional Method
0.000 Credits
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<td>Elliott Building 129</td>
<td>Sep 12, 2016 - Dec 02, 2016</td>
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Electricity and Magnetism - 11216 - ELEC 216 - T01
Associated Term: First Term: Sep - Dec 2016
Registration Dates: Jun 13, 2016 to Sep 23, 2016
Levels: Law, Undergraduate
Main Campus
Tutorial Schedule Type
Face to Face Instructional Method
0.000 Credits
View Catalog Entry

Scheduled Meeting Times

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<td>Engineering Comp Science Bldg 125</td>
<td>Sep 07, 2016 - Dec 02, 2016</td>
<td>Tutorial</td>
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