ECE 8280 – Electromagnetic Field Modelling
COURSE OUTLINE – WINTER 2015

COURSE DESCRIPTION:
Coulombian and Amperian models for polarized media and for magnetized media; uniqueness theorems, formulation and classical methods of solution of static, stationary and quasistationary field problems; modeling of electromagnetic fields in the presence of moving solid conductors; elements of relativistic electrodynamics.

COURSE OBJECTIVE:
To construct mathematical models for the analytic solution of electromagnetic field problems.

PRE-REQUISITES:
Undergraduate “Electromagnetic Field Theory”

CONTACT HOURS:
3 hours/week

COURSE CONTENT:
Mathematical formulation and methods of electrostatic field and of magnetic field problems; stationary electric fields in conducting media and field analogies; quasi-stationary field problems; eddy currents; skin and proximity effects in solid metallic conductors; electrodynamics of slowly moving solid conductors and introduction to the special theory of relativity.

HOMEWORK:
• 2 Projects
• 3 Assignments

TEXTBOOK:
EVALUATION:
Your final course grade is determined by your performance in assignments, term test, and a final examination. The weighting of each of these components is as follows:

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<th>COMPONENT</th>
<th>#</th>
<th>VALUE %</th>
<th>TOTAL VALUE</th>
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<tbody>
<tr>
<td>Homework/Assignments</td>
<td>3</td>
<td>48%</td>
<td>48</td>
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<tr>
<td>Projects</td>
<td>2</td>
<td>52%</td>
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<td><strong>TOTAL</strong></td>
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INSTRUCTOR INFO:
Name: I.M.R. Ciric
Office: E3-511
Tel: (204)474-9498
Email: irciric@ee.umanitoba.ca

Office Hours:
Thursdays, 3 p.m. to 6 p.m.

VOLUNTARY WITHDRAW:
Thursday, March 19, 2015

REQUIREMENTS/REGULATIONS

- **Student Responsibilities:** It is the responsibility of each student to contact the instructor if he/she is uncertain about his/her standing in the course and about his or her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of the Regulations dealing with incomplete term work, deferred examinations, and attendance and withdrawal.
  - **Lectures:** Attendance at lectures is essential for successful completion of this course. Students must satisfy each evaluation component in the course.

ACADEMIC INTEGRITY:
Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering and evince academic integrity in all their pursuits and activities at the university. As such, in accordance with the General Academic Regulations and Requirements of the University of Manitoba, Section 7.1, students are reminded that plagiarism* or any other form of cheating is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university) regardless of media
  - examinations
  - assignments
  - laboratory reports
  - term exams

A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty

*Plagiarism: to steal and pass off (the ideas or words of another) as one's own; use (another's production) without crediting the source