EE 430
Electromagnetic Theory & Applications
Saeid Rahimi, Ph. D.
Spring 2019

Lecture: MW 1:00 – 2:15 PM
Room: Salazar 2001
Office Hours: MW 3:00 – 4:00 PM, and by appointment
Office: Salazar 2008A; Phone: (707) 664-3390; Email: rahimi at Sonoma.edu

Course Catalogue Description: EE 430: Electromagnetic Theory & Applications (3 units)

Lecture, 3 hours. Electrostatics, magnetostatics, electric currents, electromagnetic induction, electric and magnetic fields in matter, Maxwell's equations, retarded potentials radiation reaction, light emission, simple scattering and antenna theory, properties of waveguides, relativistic formulation of electrodynamics, Fourier decomposition of fields.

Prerequisites: EE 220, MATH 241 and MATH 261, or by the consent of the instructor.


There is quite a large number of references and resources for this subject. SSU library offers many elementary and advanced books on electromagnetism. Specific references and resources (including applets, and YouTube videos) related to each topic will be provided during the semester.

Grading Policy:
Quiz & Attendance 8%
Homework 23%
Test 1, Test 2 and Test 3: 23% each

Homework Policy: Homework assignments are given weekly and are due one week after the assignment. Graded homework will be returned to students within a week. Late homework will not be accepted.

Attendance and quiz Policy: Regular attendance is critical in this course. Before attending each session, students are encouraged to take a quick look at the material covered in the previous session. A short and simple question will be asked from students selected in random in the beginning of each class.
**Grading Policy:** The dates of the tests are specified in the table below. It is important that students take the tests as scheduled. Make-up test is only allowed for students who have serious and compelling reasons for their absence. Supporting documents justifying the absence will be required.

**Cheating & Plagiarism Policy:** The university policy on cheating and plagiarism will be strictly enforced in this course. Students are strongly advised to look up the details at the following university site: [http://www.sonoma.edu/uaffairs/policies/cheating_plagiarism.htm](http://www.sonoma.edu/uaffairs/policies/cheating_plagiarism.htm). Students are strongly advised against copying homework from anyone or anywhere!

## Lecture Topics and Schedule

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<tr>
<th>Date</th>
<th>Lecture Topics</th>
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<tr>
<td>Jan 23</td>
<td>Introduction to the Course and its Applications</td>
</tr>
<tr>
<td>Jan 28, 30</td>
<td>Ch.1 Waves and Phasors</td>
</tr>
<tr>
<td>Feb 4, 6, 11, 13, 18</td>
<td>Ch.2 Transmission Lines</td>
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<td>Feb 20, 25</td>
<td>Ch.3 Vector Analysis</td>
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<td>W Feb 27</td>
<td>Test 1: Chapters 1, 2, 3</td>
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<td>Mar 4, 6, 11, 13</td>
<td>Ch.4 Electrostatics</td>
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<td>Mar 18-22</td>
<td>Spring Break</td>
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<td>Mar 25, 27</td>
<td>Ch.5 Magnetostatics</td>
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<td>Apr 1</td>
<td>Cesar Chavez Holiday</td>
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<td>Apr 3</td>
<td>Ch.5 Magnetostatics</td>
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<td>Apr 8</td>
<td>Test 2: Chapters 3, 4, 5</td>
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<td>April 10, 15, 17</td>
<td>Ch. 6 Time-varying Fields, Maxwell’s Equations</td>
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<td>April 22, 24</td>
<td>Ch.7 Plane-Wave Propagation</td>
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<td>April 29</td>
<td>Ch.8 Wave Reflection and Transmission</td>
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<td>May 1, 6</td>
<td>Ch.9 Radiation and Antennas</td>
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<td>Friday May 10</td>
<td>Test 3: Chapters 6, 7, 8, 9</td>
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