

ECE 3610 Electromagnetic Fields

Syllabus for Spring, 2012. Lecture M&W&R&F 11:30 am.

Instructor: Dr. Dean Johnson
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Hours: M&W&R&F 10:30 to 11:30 a.m.

Course Objective

Basic electromagnetic (EM) theory, as it applies to the development of the theory of electrical circuits and motors. Also, EM wave theory as it applies to such fields as transmission lines, fiber optics, LCD and 3D displays, antennas and computer graphics rendering.

Materials Used in Class:

1. **Textbook:** *Applied Electromagnetics*, 1st Ed., by S. M. Wentworth, Wiley, 2007
2. **DyKnow system registration:** Download DyKnow client <http://www.dyknow.com/download> on your laptop. Enroll during class time by clicking the round button (a boomerang) at the very top left. Next click on the Sign On entry. On the subsequent blue Sign On menu, click the New User link and select this course, and enter your WMU ID, and email address. Set the Communication string to: dyknows://dyknow.ceas.wmich.edu. You may now access live DyKnow lectures, even from home. Note: To obtain a copy of lecture materials for any given class, you must save your DyKnow session before leaving the classroom. DyKnow is also available in the CAE center as well, where the lecture slides may be printed on paper.
3. **TI-89 calculator** (or equivalent) Will be using vector calculus tools div, grad, curl and laplacian from the mv folder at the website: <http://www.math.armstrong.edu/ti92/>, plus some others in different coordinate systems that I have written and will distribute.
4. **Online homework registration:** Go to <http://www.mharis.com> & press the *Student* button. On the following screen, enter **3FC-F8-8EF** in the Section Enrollment Code box, which will bring up the ARIS HW registration process for the *Fundamentals of Electric Circuits 4th ed.* textbook from ECE 2100. Type the email address and password used in your ECE 2100 ARIS enrollment earlier, or set up an account for first time and press the *Buy Online* button to pay a \$15 fee (good for 1 year). Most of the HW in this class will come from this site.
5. **Reference:** *Fiber Optic Communication Systems*, 4th Ed., by J. Palais, Prentice-Hall, 1998

Chapters:

1. Wave Fundamentals
2. Transmission lines
3. Electrostatics
4. Magnetostatics
5. Dynamic Fields
6. Plane Waves
7. Fiber optic waveguides (extended material)
8. Antennas (extended material)
LCD and 3D displays (special material)
Radiometry and Rendering (special material)

Grading:

3 Exams	60% (missing any exam results in a zero score)
HW, Quizzes, Special	15%
Final Exam	25%
	100%

Final Exam: Monday, April 23 at 10:15 a.m. in same room

WMU Honesty Policy: Attempting to obtain credit for work (lab, hw, exams) done by somebody else is illegal and punishable in this class. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 274-276) [Graduate (pp.25-27)] Catalog that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse.