

**Department of Electrical & Computer Engineering
Louisiana State University**

Syllabus* for EE 3320

Electrical and Magnetic Fields

Spring 2004

Time/Place: 8:40-9:30 a.m./2150 CEBA

Catalog Description: EE 3320 Electric and Magnetic Fields (3) Prerequisite: MATH 2057 and MATH 2090. Maxwell's equations; wave propagation and reflection in isotropic media; static fields.

Text: *Engineering Electromagnetics* (6th Ed), by William H. Hayt, Jr. and John A. Buck, McGraw/Hill, 2001. ISBN: 0-07-230424-3.

Instructor: Mark Rabalais
Office: 3417 CEBA
Phone: 225-578-8794
Office hours: MWF: 9:30-10:30 a.m.
MWF: 1:30-2:30 p.m.

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Chapters 10, 11, 12, 13, 14 and more as time permits.

Grading: Homework: 10%
Test I : 30%
Test II : 30%
Final Exam : 30%

The final exam will be cumulative.

Each student is expected to download this syllabus and keep it handy for quick reference.

Goals/Instructional Objectives:

The goal of this course is to prepare the student to move into the profession with a rigorous formulation of electromagnetic fields in hand. In particular we strive to instill an understanding of the use of field solutions to the wave equation, as derived from Maxwell's equations, in describing the reflection and transmission of electromagnetic waves at boundary surfaces. We further illustrate the transformation of these field descriptions into voltage and current concepts in transmission lines and, with the properly defined concepts of impedance and admittance, teach the student to use a Smith chart in designing impedance matching networks. Finally, the student will investigate the behavior and the application of electromagnetic fields when, in the limit, the frequency approaches zero, Maxwell's equations become decoupled, and the domain of the electrostatic field arises.

Tests : Tests will generally include problems similar to the homework problems, examples worked in class as well as examples contained in the text. Anything in the notes is also fair game, including derivations. Tests can consist of a mix of short answer/fill-in-the-blank/multiple choice type questions as well as worked problems where your work will be graded. **Part of your grade will include your**

ability to communicate mathematically that you can logically arrive at an answer by following procedures outlined in class.

Test dates: TBA

Any discussion of a test grade must begin within one week of receiving the test back from me.

Homework: I will often post answers and solutions to homework problems on Semester Book. Other pertinent information may also be posted on Semester Book throughout the semester. If you have not already done so, contact the Applications Service Center at 334-2775 or 578-0100 to open your PAWS account and gain access to Semester Book.

Do not discard any of your homework! Keep it and bring all of it to my office when you have any question about your grade so that we can look at it together and see what problems you are having. Besides, it will be useful for studying for the final exam.

In class: You are expected to bring your text book to class every day. You are expected to read the appropriate sections of the text to gain a fuller understanding of the material. I do not give out copies of my notes so if you miss a class get the notes from a classmate. **Turn off all electronic communication devices when you enter the room!**

Academic integrity is expected of all students. The classroom is likely to be very crowded during tests and the temptation to look on someone else's paper will exist. If I suspect you of cheating during a test I will allow you to finish the test and I will report the incident to the dean of students.

Final exam reviews: If you would like to review your final exam prior to grade submission to the university you may come to my office no later than 12:00 p.m. on Tuesday, May 18, 2004. After this time grades will be officially submitted to the university. In reviewing your exam you may compare it to the answer key for your own edification.

*This syllabus is meant to be guide for the course. I reserve the right to make changes as the semester progresses. The class will be kept informed of any changes. This syllabus was edited in December, 2003.