Summer 2010

PHYSICS 221-3
Electromagnetics

TEXTBOOK: *Electromagnetics for Engineers*
Author: Fawwaz T. Ulaby
Publisher: Pearson

COURSE DESCRIPTION:

Electrostatics, magnetostatics, capacitance, inductance, concepts of electric and magnetic fields, Maxwell's equations.

Prerequisite: PHYS 126 or 121 or 141; MATH 251.

Quantitative.

COURSE OUTLINE:

1. Relevant vector calculus: divergence theorem, Stokes' theorem, curvilinear coordinates
2. Electrostatics: the electric field, electric potential, work and energy in electrostatics, conductors, capacitors
3. Laplace equation, method of images
4. Electric fields in matter
5. Magnetostatics
6. Magnetic fields in matter
7. Alternating currents
8. Electromagnetic waves

This course is primarily intended for Engineering Science students registered in the Systems option. Students pursuing an undergraduate degree in Physics or other Engineering Science programs should take PHYS 321 instead of PHYS 221.

GRADING:

10% Homework
20% Midterm #1
20% Midterm #2
50% Final Exam

GENERAL:

Students who cannot write their exam during the course's scheduled exam time must request accommodation from their instructor in writing, clearly stating the reason for this request, before the end of the first week of classes.