

EASTERN NAZARENE COLLEGE
PY 322 ELECTRICITY AND MAGNETISM

Fall, 2008

Daily Schedule

Introduction to Electromagnetic

Wednesday **topic:** Introduction to Electromagnetic
Sept. 3 **read:** Advertisements and Class Notes

Vector Analysis

Friday **topic:** Vectors Analysis
Sept. 5 **read:** Chapter 1, Section 1.1

Monday **topic:** Differential Calculus
Sept. 8 **read:** Chapter 1, Section 1.2

Wednesday **topic:** Integral Calculus
Sept. 10 **read:** Chapter 1, Section 1.3

Homework Assignment #1 due Friday Sept. 12

Friday **topic:** Curvilinear Coordinates
Sept. 12 **read:** Chapter 1, Section 1.4 and Appendix A

Monday **topic:** Stokes's and Helmholtz's Theorem
Sept. 15 **read:** Chapter 1, Sections 1.5, 1.6, and Appendix B

Wednesday **topic:** Review
Sept. 17 **read:**

Homework Assignment #2 due Friday Sept. 19

Electrostatics

Friday **topic:** The Electric Field and Coulomb's Law
Sept. 19 **read:** Chapter 2, Sections 2.1.1, 2.1.2, 2.1.3, 2.2.4

Monday **topic:** Continuous Charge Distribution
Sept. 22 **read:** Chapter 2, Section 2.1.4, handout

Wednesday Exam #1 covering Sept. 3 through Sept. 17

Sept. 24

Friday **topic:** Electric Flux and Gauss's Law
Sept. 26 **read:** Chapter 2, Section 2.2

Monday **topic:** Electric Potential, Work
Sept. 29 **read:** Chapter 2, Section 2.3

Homework Assignment #3 due Wednesday Oct. 1

Wednesday **topic:** Energy in Electrostatics
Oct. 1 **read:** Chapter 2, Section 2.4

Friday **topic:** Conductors and Capacitance
Oct. 3 **read:** Chapter 2, Section 2.5 maybe skip 2.5.3

Monday **topic:** Multipole Expansion
Oct. 6 **read:** Chapter 3, Section 3.

Monday **topic:** Dipole
Oct. 6 **read:** Chapter 3, Section 3.

Homework Assignment #4 due Wednesday Oct. 8

Electric Fields in Matter

Wednesday **topic:** Polarization and The Electric Field of a Polarized Object
Oct. 8 **read:** Chapter 4, Section 4.1 and 4.2(?)

Friday **topic:** The Electric Displacement Field
Oct. 10 **read:** Section 4.3

Monday **Columbus Day**
Oct. 13

Wednesday **topic:** Linear Dielectrics
Oct. 15 **read:** Chapter 4, Section 4.4

Friday **topic:** Review
Oct. 17 **read:** Chapter 4

Homework Assignment #5 due Monday Oct. 20

Magnetostatics

Monday **topic:** The Magnetic Field, the Lorentz Force
Oct. 20 **read:** Chapter 5, Section 5.1

Wednesday **topic:** The Biot-Savart Law
Oct. 22 **read:** Chapter 5, Section 5.2

Friday **Exam #2** **covering Sept. 19 through Oct. 17**
Oct. 24

Monday **topic:** The Divergence and Curl of B
Oct. 27 **read:** Chapter 5, Section 5.3

Homework Assignment #6 due Wednesday Oct. 29

Wednesday **topic:** Application of Ampere's Law
Oct. 29 **read:** Chapter 5, Section 5.3.3

Friday **topic:** Magnetic Vector Potential
Oct. 31 **read:** Chapter 5, Section 5.4

Monday **topic:** Review
Nov. 3 **read:** Chapter 5, Section 5.4

Homework Assignment #7 due Wednesday Nov. 5

Magnetic Fields in Matter

Wednesday **topic:** Magnetization and the Field of a Magnetized Object
Nov. 5 **read:** Chapter 6, Section 6.1 and 6.2(?)

Friday **topic:** The Auxiliary Field H
Nov. 7 **read:** Chapter 6, Section 6.3

Monday **topic:** Linear and Nonlinear Magnetic Media
Nov. 10 **read:** Chapter 6, Section 6.4

Homework Assignment #8 due Wednesday Nov. 12

Electrodynamics and Maxwell's Equations

Wednesday **topic:** Electromotive Force
Nov. 12 **read:** Chapter 7, Section 7.1

Friday **topic:** Electromagnetic Induction and Faraday's Law
Nov. 14 **read:** Chapter 7, Section 7.2

Monday Exam #3 covering Oct. 20 through Nov. 10
Nov. 17

Wednesday **topic:** Maxwell's Equations
Nov. 19 **read:** Chapter 7, Section 7.3

Friday **topic:** Review or Conservation Laws
Nov. 21 **read:** Chapter 7, Section 7.3

Monday **topic:** Conservation Laws: Charge, Energy, and Momentum
Nov. 24 **read:** Chapter 8, Section 8.1 maybe 8.2(?)

Homework Assignment #9 due Wednesday Nov. 26

Electromagnetic Waves

Wednesday **topic:** Waves in One Dimension and Electromagnetic Waves
Nov. 26 **read:** Chapter 9, Section 9.1

Friday Thanksgiving Break
Nov. 28

Monday **topic:** Electromagnetic Waves in a Vacuum
Dec. 1 **read:** Chapter 9, Section 9.2

Wednesday **topic:** Electromagnetic Waves in Matter
Dec. 3 **read:** Chapter 9, Section 9.3

Friday **topic:** Absorption and Dispersion

Homework Assignment #10 due Monday Dec. 8

Monday **topic:** Review
Dec. 8

Dec. 9-14 Exam #4 (Nov. 12 through Dec. 5) and Final Exams

***** *that's all folks* *****

*Have a Merry Christmas
and a happy New Year*

Transmission Line

Monday
Nov. 13 **topic:** Transmission Line Equation and Parameters
read: Chapter 8, Sections 8.1, 8.2, and 8.3
practice problems:
homework:

Wednesday
Nov. 15 **topic:** Wave Characteristics on an Infinite and Finite Transmission Line
read: Chapter 8, Section 8.4 and 8.5
practice problems:
homework:

Friday
Nov. 17 **topic:** The Smith Chart and Impedance Matching
read: Chapter 8, Section 8.6 and 8.7
practice problems:
homework:

Monday
Nov. 20 **topic:** Applications
read: Chapter 8, Section
practice problems:
homework:

Wednesday
Nov. 22 **topic:** class????
read: Chapter
practice problems:
homework:

Monday
Nov. 27 **topic:**
read: Chapter 8, Section
practice problems:
homework: