Course Overview

Electric Field (Gauss' Law, Faraday's Law, Coulomb's force law) – Chapters 20, 21, 27.

$\oint_S \vec{E} \cdot d\vec{A} = \frac{Q}{\varepsilon_0}$ enclosed by S, $\oint \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$ enclosed by loop, $\vec{F} = q\vec{E}$ or $k\frac{qQ}{r^2}\hat{r}$

Magnetic Field (Gauss' Law, Ampere's Law, Lorentz force law) – Chapter 26, Section 29.2.

$\oint_S \vec{B} \cdot d\vec{A} = 0$ enclosed by S, $\oint \vec{B} \cdot d\vec{s} = \mu_0 I + \mu_0 \varepsilon_0 \frac{d\Phi_E}{dt}$ encl. by loop, $\vec{F} = q\vec{v} \times \vec{B}$

Potentials and Energy – Chapters 22, 23, 25, 28, 29; *plus Sections 33.3 and 33.7 (sometimes*).

DC Circuits (with R, C, and L) – Chapters 23, 24, 25, 27.

AC Circuits – Chapter 28.

Includes a detailed treatment of driven damped oscillations and resonance, topics not covered in my PHY2048 course.

E+M Waves – Chapter 29.

Most of this ...

Optics – Chapters 30, 31.

Separate handout plus ...

Interference and Diffraction – Chapter 32.

Basic Atomic Physics – *Section 34.4 (sometimes)*.

(A pdf file that summarizes key equations from PHY2048 is also available on the web.)