

PHYSICS 211
ELECTRICITY AND MAGNETISM
(3.0; 3 credits)

Textbook : Physics Volume II
Serway and Beichner
Fifth Edition, 2000
Saunders College

Contents :

1. Coulomb's law, the Electric field and applications.
2. Gauss' law and applications.
3. Electric potential.
4. Capacitance and dielectrics
5. Current , Resistance and Circuits.
6. The magnetic field, magnetic force on charge and current, torque on a current loop, galvanometer, circulating charges, cyclotron.
7. Biot-Savart and Ampere's laws, displacement current, and simple applications.
8. Magnetic properties of matter, description of para-dia-and ferro-magnetism.
9. Faraday's law, Lenz's law, motional emf, time varying magnetic fields.
10. Self inductance, LR circuit, energy and energy density in a magnetic field.
11. Electromagnetic oscillations, LC oscillations, RLC circuit qualitative discussion of Maxwell's equations. Electromagnetic polarized plane waves

N.B. Prerequisites: Physics 101 and 105 or 102 and 106, or Lebanese Baccalauriate or its equivalent, and Pre- or co-requisite: Mathematics 201

Fall 2000