

PHYS 102 General Physics – II B. Hetényi 2012 Fall Syllabus		
Week	Main subtitles	Additional information
1	Electrostatic Field	Electric charge, Coulomb's Law, Electric Force and Electric field, E-field lines, E-field of continuous charge distributions
2	Electrostatic field	E-field of cont. charge dist (cont), Motion under E-field
3	Gauss's Law	Electric flux, Gauss's law, applications of the Gauss's law
4	Electrostatic Potential	Potential energy and potential difference, Electrostatic potential for various charge distributions, Electrostatic field from Electrostatic potential.
5	Capacitance and Dielectrics	Definition of capacitance, calculating the capacitance
6	Capacitance and Dielectrics	Combination of capacitors, energy stored in a capacitor, dielectrics
7	Current and Resistance	Electric DC current, resistance, a model for conduction, physical examples of resistors
8	Direct Current Circuits	Electromotive force, resistors in series and paralel, Kirchoff's rules, RC circuits
9	Magnetostatic Field	Magnetic field and madgnetic force, Motion under uniform B-field, magnetic force between two current carrying wires, magnetic torque
10	Sources of Magnetic Field	Biot-savart law, magnetic force between two paralel conductors
11	Sources of Magnetic Field	Ampere's law, Solenoid, Magnetic Gauss's law
12	Fraday's, Lenz's Law and Inductance	Law of induction, electromotive force, lenz's law, induced electric and magnetic fields , self induction, RL circuits, magnetic potential energy
13	Alternating current circuits	AC sources, RLC circuits, resonance, AC power
14	Electromagnetic Waves	Displacement current, Maxwell's equations and electromadgnetic wave propagation

Course textbook: Young and Freedman, *University Physics* (Pearson).

Other recommended textbooks:

- Young and Friedmann, *University Physics*,
- Jewett and Serway, *Physics for Scientists and Engineers*,
- Ohanian, *Physics for Enginreers and Scientists*,
- Feynman Lectures on Physics, Volume 15, *Electricity and Magnetism*

Course requirements and evaluation:

Course grade 80%, Laboratory grade 20%.

Course grade:

Homeworks and Quizzes: (% 30) every week, due in one week

Midterms I and II: (% 20 first, % 20 second) closed book, in class

Final: (% 30) closed book (time announced by the dept.).

Notes: To obtain a passing grade the average for the homeworks and quizzes must be at least 45%. Also, to obtain a passing grade a student must have attended at least 75% of the lectures.

Exam dates:

1. **Midterm I: 20th of October, 1.00pm, location to be announced**
2. **Midterm II: 1st of December, 1.00pm, location to be announced**
3. **Final Exam:**

Contact: Balazs Hetényi

Office Hours: Thursday 15:40-17:40.

Office: SA- 224, phone: 1972 , e-mail: hetenyi@fen.bilkent.edu.tr

Recitation assistant: Mehmet Günay

Office: SA-206, e-mail: gunay@fen.bilkent.edu.tr