

Phys104

General Physics II (Electricity and Magnetism)

Time: Sunday, Tuesday & Thursday 08:00-09:00 a.m. **Section #:** 20404

Location: 1A 99; Building#4, College of Science

Class website: <http://fac.ksu.edu.sa/somran/course/156477>

Lecturer: Saad BinOmran

Office hours: Sunday, Tuesday & Thursday 09:00-10:00 a.m.

Contact info: Office: 1A15 Building#4 College of Science

Text Book: Physics for Scientists and Engineers with Modern Physics Sixth edition
Raymond A. Serway Saunders College Publishing ISBN 0-03-015654-8

Course Description:

Objectives: The course enables the students to understand the principles of electricity and magnetism.

Major topics to be covered include: (tentatively)

Electric Charges and Coulomb Law, Electric Field of Point Charges, Motion of Charged Particles in a Uniform Electric Field, Electric Flux and Gauss Law and Its Applications, Potential Difference and Electric Potential, Electric Potential of a Uniform Electric Field, Total Potential (Reaction Energy), Electric Capacitance and the Equivalent Capacitance, Energy Stored in a Charged Capacitor and Dielectrics, Electric Current, Conductivity, and Ohm's Law, Resistance and Temperature, Electrical Power and Energy, Electrical Energy Consumption Cost.

The Direct Current Circuits and the Equivalent, Resistance, Kirchhoff 's Rules.

Motion of Charged Particles, Lorenz Force, the Speed Selector, and the Mass Spectrometer, Ampere's Law and the Magnetic Field of a solenoid, Faraday's Law of Induction and Motional Electromotive Force, Inductance and Self Inductance, Energy Stored in the Magnetic Field, Alternating Current Circuits and V_{rms} and I_{rms} , Inductors in an AC Circuit, Capacitors in an AC, Circuit, and the Phase Angle, Impedance in an RCL (in Series) Circuit, Power and Resonance in an RCL Circuit.

Exams: There will be two mid-term and final exams.

Quizzes: From time to time you will be given a short quiz. These quizzes may be announced or not announced. If you keep up with the reading and hw these quizzes should not be difficult. I expect to give you at least 8 quizzes. Being absent on a quiz day will result in a zero for that quiz.

Homework: There will be 10 homework sets. These hw will be given at the beginning of the week and should be hand out at the end of the same week. No late hw will be accepted.

Grades:

Two Midterm Exams (each 15 marks).....	30 %
Lab.....	30 %
Final exam.....	40 %
Class activities (Homework, Short quizzes, presentation....)	(bonus)