

Basic and Applied Science Courses (BA)

Basic and Applied Science Courses Group

BA 113 – Physics 1

COURSE INFORMATION

Course Title: Physics 1

Code: BA 113

Hours: Lecture – 2 Hrs. Tutorial – 2 Hrs. Credit –3.

Prerequisite: None

GRADING

Class Performance/Attendance: 10%

Midterm # 1/Assignments – (7th Week): 30%

Midterm # 2/Assignments – (12th Week): 20%

Final Exam: 40%

COURSE DESCRIPTION

Electrostatics (Conductor and insulator) + Coulumb's law. The electrostatic force between multiple charges. The electric field for tow like and unlike charges. Electric potential, potential energy. Capacitors (Parallel plate capacitor, energy stored). Capacitors with dielectric between its plates. Electric currents an DC circuits. RC circuits. Magnetism (Force an a charge and current carrying conductor). Generation of magnetic fields. Electro-magnetic induction, magnetic flux, faraday's law. Lenz's law, mutual induction-self induction . Physical optic (Huygen's principle of light-interference).

TEXT BOOK & REFERENCES

Physics for scientists and engineers by Serway, Publisher: 3rd edition.

Advance level physics by Nelhan and Parker.

Physics for scientists & engineering by Paul A. Tipler. W.H Publisher: Freeman & Company.

APPENDIX A-17

COURSE AIM

At the end of this course the student should be able to extend his knowledge over the required background, to think logically and analyze any problem the could meet him.

SPECIFIC OUTCOMES OF INSTRUCTION

- The students will gain good knowledge about the nature and the existence of static electricity, the interaction between different type of charges and the electric field types generated by these charges.
- The students will be able to distinguish between the static electricity and the electric current through the application of ohm's law and gives the student basic information about the structure of simple electric circuit.
- The students will have a good background about the theory of magnetism and electromagnetic Induction.

COURSE OUTLINE

- Week Number 1:* Electrostatics (Conductor and insulator) + Coulumb's law.
- Week Number 2:* The electrostatic force between multiple charges.
- Week Number 3:* The electric field for tow like and unlike charges.
- Week Number 4:* Electric potential, potential energy
- Week Number 5:* Capacitors (Parallel plate capacitor, energy stored).
- Week Number 6:* Capacitors with dielectric between its plates.”
- Week Number 7:* Electric currents an DC circuits. 7th week exam
- Week Number 8:* Revision in series and in parallel + Kirchhoffs rules
- Week Number 9-10:* RC circuits.
- Week Number 11:* Magnetism (Force a charge and current carrying conductor).
- Week Number 12:* Generation of magnetic fields.
- Week Number 13:* Electro-magnetic induction, magnetic flux, faraday's law.
- Week Number 14:* Lenz's law, mutual induction-self induction .
- Week Number 15:* Physical optic (Huygen's principle of light-interference).
- Week Number 16:* Final Exam.

APPENDIX A-18

COURSE COORDINATOR AND DEMAND

Course Coordinator: Dr.Ahmed Akel.

Course Demand: *Required*