

BA113- Physics (1)

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

COURSE COORDINATOR

Dr Ahmed Akl

TEXT BOOK:

Hans C. Ohanian and John T. Markert, Physics for engineers and scientists, W.W. Norton & Co.; latest edition.

COURSE DESCRIPTION:

This course consists of four parts static electricity, electric current, magnetism and light.

PREREQUISITE:

None

RELATION OF COURSE TO PROGRAM:

Required

COURSE INSTRUCTION OUTCOMES:

The students gains good knowledge about the nature and the existence of static electricity, the interaction between different type of charges, the electric field types generated by these charges, and the theory of magnetism and electromagnetic induction. In addition, the student is capable of distinguishing between the static electricity and the electric current through the application of ohm's law using basic information about the structure of simple electric circuit.

TOPICS COVERED:

Introduction to static electricity and Coulomb's law - Introduction to static electricity and coulomb's law - Electric field. - Electric potential. – Capacitors - Electric current, ohm's law resistors in series and parallel - Kirchhoff's rule - Introduction to theory of magnetism and different applications - Electromagnetic induction - Optics and waves (nature of light, properties of light waves) - Young's double slit 'polarization of light waves.

CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:

Professional Component Content			
Math and Basic Sciences	Engineering Topics	General Education	Engineering Design
✓			

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course Outcomes
a.	An ability to apply knowledge of mathematics, science, and engineering.	✓
b.	An ability to design and conduct experiments, analyze and interpret data.	✓
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	
d.	An ability to function on multi-disciplinary teams.	✓
e.	An ability to identify, formulate, and solve engineering problems.	
f.	An understanding of professional and ethical responsibility.	
g.	An ability to communicate effectively.	
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal content	
i.	A recognition of the need for, and an ability to engage in life-long learning.	
j.	A knowledge of contemporary issues within and outside the electrical engineering profession.	
k.	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	