

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Magnetism and Alternating Current
Course number	PHYS2305
Faculty	
Department	
Course type	Major Needs
Course level	2
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 - The students will be able to
- 2 - Describe magnetic field and field lines
- 3 - Explain magnetic field Due to a current-carrying conductor
- 4 - Understand magnetic field Due to a current through a straight conductor
- 5 - Demonstrate magnetic field due to a current through a circular loop
- 6 - • Analyze the magnetic field pattern around a solenoid carrying current
- 7 - Express force on a current – carrying conductor in a magnetic field
- 8 - Describe the working of an electric motor
- 9 - Define electro magnetic induction
- 10 - Understand any analyze AC current circuit LRC

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * Recognize and use appropriately important technical terms and definitions * Apply physics laws of electricity and magnetism in familiar situations * Solve real and hypothetical problems by identifying the underlying physics and analyzing the problem.
Intellectual Skills	<ul style="list-style-type: none"> * Students be able to carry out numerical calculations and to solve problems in connection with these topics, will be achieved by assessments.
Professional Skills	<ul style="list-style-type: none"> * Students will understand the theoretical and experimental background of electricity and magnetism

Course Contents

- 1 - Magnetic fields and forces
- 2 - The laws of Biot and Savart
- 3 - Ampères law
- 4 - Electromagnetic induction
- 5 - Faradays and Lenzs laws
- 6 - Alternating-Current Circuits

Teaching and Learning Methods

- 1 - Lectures
- 2 - Discussion
- 3 - Problem Solving
- 4 - Assignment
- 5 - Demonstrating Videos

Teaching and Learning Methods for the Disabled Students

- 1 - All the course lectures are video recorded and published on youtube

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
First med term exam	forth week	20
Second med term exam	eighth week	20
Topic presentation	tenth week	10

Books and References

Course note	Power point lectures
Essential books	Physics for Scientists and Engineers by RemR.A.Serway, J.W.Jewett
Recommended books	Electricity and Magnetism (Berkeley Physics Course, Vol. 2) by Edward M. Purcell Fundamentals of Physics by D Halliday, R Resnick, and J Walker, Wiley
Other References (Periodical, web sites, etc.)	http://physicsacademy.org/academy/category/المغناطيسية-والتيار-المتردد/