Faculty of Engineering & Technology

Physics 2

Information :

Course Code :	PHY 132	**Level :**	Undergraduate	**Course Hours :**	4.00- Hours

Department : Faculty of Engineering & Technology

Instructor Information :

Title	Name	Office hours
Professor	Salah Mohamed Ibrahem Elsheikh	2
Lecturer	Mohamed Ehab Ahmed Fakhr Eldin Bakr	23
Lecturer	Mohamed Ehab Ahmed Fakhr Eldin Bakr	23
Assistant Lecturer	Mahmoud Ahmed Nasr Kamal Abdo Mostafa	7
Assistant Lecturer	Lamia Hamdy Ahmed Kamal Shehab Eldin	16
Assistant Lecturer	Mahmoud Ahmed Nasr Kamal Abdo Mostafa	7
Assistant Lecturer	SHEROUK SOBHI ABDELSALAM FOUDA	14
Assistant Lecturer	Mohamed Essam Abd El Aziz Abd El Aal	20
Assistant Lecturer	Lamia Hamdy Ahmed Kamal Shehab Eldin	16
Assistant Lecturer	Mahmoud Ahmed Nasr Kamal Abdo Mostafa	7
Assistant Lecturer	Nada El Said Abdallah Hassan Salem	8
Assistant Lecturer	Nada El Said Abdallah Hassan Salem	8
Teaching Assistant	Ahmed Abdelfattah Abdelaziz Abdelfattah	
Teaching Assistant	Romisaa Gamal Mahmoud Abdelrhman	11
Teaching Assistant	Omar Salah Abdelmoniem Ghareeb	
Teaching Assistant	Romisaa Gamal Mahmoud Abdelrhman	11
Teaching Assistant	Ahmed Shawky Youssef Mohamed El Dkak	1
Teaching Assistant	Mariam Mohamed Kamal Abdelaziz	
Teaching Assistant	Ahmed Medhat Mohamed Mohamed Rabie	
Teaching Assistant	Romisaa Gamal Mahmoud Abdelrhman	11

Area Of Study :

The objective of this second physics course for the engineering students is to develop their ability to understand electricity and magnetism topics in classical physics and to analyze and logically solve problems of engineering applications based on these topics. On successful completion of these courses the engineering student will be able to:
1.Know and understand all old classical physics that is applied up to today.
2.Learn electricity as a single topic.
3.Learn magnetism as a single topic.
4.Solve problems about these two topics.
5.Understand at the end that electricity and magnetism are connected into one topic (Electromagnetic Theory).

Description :

Coulomb's Law, Electric Field and Flux, Gauss' Theorem in electrostatics and its Applications, Electric Potential and electric potential energy, Electrodynamics, electric current, electric current density, Ohms law and Kirchhoff's rules to solve an electric circuit-Magnetic field and flux, Gauss' law in magnetism Force due to a

moving charge and due to an Electric current, Ampere's circuital Law, Faraday's Law for Induction, Maxwell's equation in integral form and their physical meaning for electromagnetism

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Electric force and field.
2 -	Gauss’s law for electrostatics and its different applications.
3 -	Electric potential and electric potential energy.
4 -	Capacitors and dielectrics.
5 -	Electric circuit, electric current and ohm’s law.
6 -	Magnetostatic force and field and Ampere’s circuital law.
7 -	Magnetodynamics and Faraday’s Law for induction.
b.Intellectual Skills: :	
1 -	Deal with physical problems.
2 -	Think logically and creatively.
c.Professional and Practical Skills: :	
1 -	Gaining skills in identifying and using the different physical parameters related to this course, and perform experiments related to these topics.
2 -	Gaining skills in constructing the physical laws and be able to solve the physical problems.
d.General and Transferable Skills: :	
1 -	Work effectively in team.
2 -	Develop skills related to creations thinking, problem solving , oral and written presentation, and team work.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Electrostatic force and field	10	6	4
Gauss’s Law for electrostatics	10	6	4

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Electric potential and electric potential energy	7	3	4
Capacitors and dielectrics	7	3	4
Electric current and Ohm’s Law	6	2	4
Electric circuits	6	2	4
Magnetic force due to moving charge	6	2	4
Magnetic force due to current carrying wire	7	3	4
Ampere’s Law	6	2	4
Gauss’s Law for magnetism	10	6	4
Faraday’s Law	6	2	4
Applications for Faraday’s Law	6	2	4
Self and Mutual inductance	12	4	8
Revision	6	2	4

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	16	
Lab	20.00	1	
Mid-Term Exam 1	15.00	6	
Mid-Term Exam 2	15.00	11	
Semester Work	10.00	1	

Course Notes :

handout and notes

Recommended books :

1.“College physics”, Giambattista and Richardson, Mac gramttill, 3rd edition, 2010.
2.“Physics for scientists and engineers”, Serway, Thomson Brookes/Cok., 8th edition, 2011.