Physics II

Course Code:

PHYS 102

Course Period:

Spring

Course Type:

Core

Credits:

4

Theoric:

3

Practice:

0

Laboratory Hour:

2

ECTS:

6

Prerequisite Courses:

Physics I [1]
Course Language:

English

Course Objectives:

The aim of this course is to teach basic concepts of electricity and magnetism and in particular, to have students learn for themselves how physics as a discipline can be used to obtain a deep understanding of how the world works.

Course Content:

Electric Charge, Electric Fields, Gauss' Law, Electric Potential, Capacitance, Current and Resistance, Circuits, Magnetic Fields, Magnetism, Magnetic Forces, Magnetic Field Due to Currents, Induction, Maxwell's Equations

Course Methodology:

1: Lecture, 2: Question-Answer, 5: Problem Solving, 14: Laboratory ; 15:Homework

Course Evaluation Methods:

A: Testing, B: Final, I:Laboratory

1) Expresses the basic (theoretical and experimental) concepts of electricity and magnetism.	1,2,5,14,15	A,B,I
2) Identifies, formulates and solves physical problems regarding the electricity and magnetism.	1,2,5,14,15	A,B,I
3) Relates the physics of electricty and magnetism and other branches of physics,and learns how physics as a discipline can be used to obtain a deep understanding of how the world works.	1,2,5,14,15	A,B,I
4) Gets prepared for the advanced physics lectures regarding electricity and magnetism and learns a range of methods for applying these understandings and problems toward solving a broad range of physical problems .	1,2,5,14,15	A,B,I

COURSE CONTENT		
Week	**Topics**	**Study Materials**
1	ELECTRIC CHARGE, ELECTRIC FIELDS	electric charge
2	ELECTRIC CHARGE, ELECTRIC FIELDS	electric field
3	GAUSS'S LAW	Electric field
4	GAUSS'S LAW	Electric field
5	ELECTRIC POTENTIAL	Potantial
6	CAPACITANCE	Capacitors
7	CURRENT AND RESISTANCE	
8	CIRCUITS	Current, circuit elements
9	MAGNETIC FIELDS, MAGNETISM	Magnetic field
10	MAGNETIC FORCE	
11	MAGNETIC FIELD DUE TO CURRENTS	Sources of magnetic fields

12	MAGNETIC FIELD DUE TO CURRENTS	Ampere
13	MAXWELL'S EQUATIONS	Ampere,Faraday
14	MAXWELL'S EQUATIONS	Faraday

Textbook	"PHYSICS FOR SCIENTISTS AND ENGINEERS" GIANCOLI, 4TH EDITION, PRENTICE HALL
Additional Resources	FUNDAMENTALS OF PHYSICS" HALLIDAY RESNICK , "PHYSICS", SERWAY.

Documents	"FIRST YEAR PHYSICS LABORATORY EXPERIMENTS" YEDİTEPE UNIVERSITY-DEPARTMENT OF PHYSICS (2002-...)
Assignments	
Exams	

IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Mid-terms	2	50
Laboratory	10	20
Assignment	9	0
Final	1	30
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		30
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		70
Total		**100**

No	**Program Learning Outcomes**	**Contribution**				
		1	**2**	**3**	**4**	**5**
1	gains the ability to apply the knowledge in physics and mathematics					**X**
2	gains the ability to construct an experimental setup, perform the experiment, analyze and interpret the results					**X**

3	is supposed to have the education required for the measurements in scientific and technological areas			**X**		
4	is able to work in an interdisciplinary team				**X**	
5	is able to identify, formulate and solve physics problems					**X**
6	is conscious for the professional and ethical responsibility	**X**				
7	is able to communicate actively and effectively			**X**		
8	is supposed to have the required education for the industrial applications and the social contributions of physics	**X**				
9	is conscious about the necessity of lifelong education and can implement it			**X**		
10	is supposed to be aware of the current investigations and developments in the field			**X**		
11	can make use of the techniques and the modern equipment required for physical applications			**X**		

Activities	**Quantity**	**Duration (Hour)**	**Total Workload (Hour)**
Course Duration (Including the exam week: 14x Total course hours)	14	3	42
Hours for off-the-classroom study (Pre-study, practice)	15	5	75
Mid-terms	2	2	4
Lab	11	2	22
Final examination	1	3	3
Total Work Load			
Total Work Load / 25 (h)			146
ECTS Credit of the Course			5.8
ECTS Credit of the Course			6