



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Physics II (electricity and Magnetism)							
Course Code		FİZ102		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	6	Workload	145 (<i>Hours</i>)	Theory	4	Practice	2	Laboratory	0
Objectives of the Course		To teach the fundamental topics of electricity and magnetism							
Course Content		Electrical charge and matter, Coulomb's Law and Gauss' Law, Electric field, Electrical Potential, Capacitance and dielectrics, electric currentand resistance, DC circuits, electromotive force and circuits, Magnetic field, sources of magnetic field, Ampere's Law, Faraday's Law Inductioan, AC circuits							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation)					
Name of Lecturer(s)		Prof. Hüseyin DERİN							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	25
Final Examination	1	70
Quiz	6	15

Recommended or Required Reading

1	Fen ve Mühendislik için Fizik II", Palme Yayıncılık, Ankara. Çeviri Editörü: Prof. Dr. Kemal Çolakoğlu; Editörler: R.A. Serway, R.C. Beichner, J.W. Jevett.
2	Üniversite Fiziği, Cilt 2, Çeviri Editörü: Hilmi Ünlü; Editörler: H. D. Young, R. A. Freedman
3	Prof. Dr. Cengiz Yalçın, Yrd. Doç. Dr. Erdoğan Apaydın, "Fiziğin Temelleri II", Arkadaş Yayınları, Ankara.

Week	Weekly Detailed Course Contents	
1	Theoretical	Electric charge and matter
2	Theoretical	Coulomb's Law and Gauss's law
3	Theoretical	Electric field and Gauss's law
4	Theoretical	Electrical Potential
5	Theoretical	Electrical Potential
6	Intermediate Exam	Midterm
7	Theoretical	Capacitance and dielectrics
8	Theoretical	Electric current and resistance
9	Theoretical	Direct current circuits
10	Theoretical	Electromotive force and circuits
11	Theoretical	Magnetic fields
12	Theoretical	Magnetic field sources
13	Theoretical	Ampere's law, Faraday's law
14	Theoretical	Induction
15	Theoretical	Alternative Current circuits
16	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	6	112
Quiz	6	3	0.5	21
Midterm Examination	1	4	2	6



Final Examination	1	4	2	6
Total Workload (Hours)				145
[Total Workload (Hours) / 25*] = ECTS				6
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To learn the fundamentals of charge and matter
2	To learn the fundamentals of the electric field
3	To learn the fundamentals of Capacitors
4	To learn the fundamentals of magnetic field
5	To learn the fundamentals of inductance
6	To learn the fundamentals of the electromagnetic waves

Programme Outcomes (Physics)

1	To understand the importance of physics by understanding the general concepts of physics, matter and energy
2	To be able to define the movements of matter and to distinguish the characteristics of movements under different force (potential)
3	Be able to say the meaning of Lagrange and Hamiltonian formulations of the movement and apply them to simple problems,
4	To be able to express the fundamental concepts such as time, space, force, momentum and energy in the movements of matter close to the speed of light and be able to solve and interpret the simple problems related to
5	To be able to establish the relationship between electric and magnetic forces and to be able to illustrate their applications to technology and solve problems related to the movement of particles in electric and magnetic fields
6	Be able to say the basic laws of electromagnetics and apply them to problems, illustrate their applications to simple technology
7	To be able to tell the reasons of the differences between the classical cases and the quantum scale and explain the reasons
8	Explain the concepts of discontinuity, uncertainty, matter-antimatter, indecisiveness of quantum physics with examples and explain simple problems related to the subject.
9	To be able to solve the problems of micro-particles under different simple potentials and be able to say their meanings
10	To be able to establish the relationship between the movements and properties of multi-particle systems and the laws of probability and solve simple problems
11	To be able to illustrate the laws, meanings and applications of thermodynamics and use them
12	Be able to use their knowledge about quantum physics and mechanics in explaining some properties of atoms and nuclei
13	To be able to show the meanings of some theoretical concepts by experimenting, and develop a strong relationship between thought and the real world, develop analytical thinking
14	To be able to apply the meanings of the basic laws of physics, their comprehension of universality and the relations between them and the unity of the laws of nature.
15	Use computer to solve physics problems
16	To be able to understand the problems by using their analytical knowledge skills and to propose solutions by dealing with the laws of physics
17	Be able to use the knowledge of physics to understand new technologies
18	To be able to tell the relations between symmetry and conservation laws in laws of physics

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6
P1	4	4	4			
P2	4				4	4
P3					4	
P5	5	5	4	4		
P6	5			4		4
P14	4		4	4	4	
P16	4	4	4			4
P17	4	4	4	4		
P18			4		4	4

