PHYS102 Engineering Physics II, Electricity and Magnetism

PHYS102 Engineering Physics II							
Course Name	**Course Code**	**Term**	**h/w**	**Appl.**	**Lab. h/w**	**Credit**	**ECTS**
Engineering Physcs II	PHYS102	1	3	0	2	4	6

Prerequisites	No
Course Language	English
Course Type	Compulsory
Course Level	Undergraduate
Way of teaching	Online, face to face
Learning and teaching techniques	Expression, question answer, application

Course Objectives

Students should become proficient in the topics of electricity and magnetism presented. Students should be able to apply the basic laws of electricity and magnetism to solve simple problems concerning the motion and distribution of charges.

Course Educational / Learning Outcomes

Students who can successfully complete this course;

1.	Gain a knowledge and understanding of fundamental physical concepts in the areas covered in this class
2	Apply an understanding of these concepts to various systems and devises.
3	Acquire problem solving skills, mathematical techniques, and the ability to synthesize.
4	Understand the relationship between electrical charge, electrical field, electrical potential, and magnetism.
5	Be able to use electromagnetic theory and principles in a wide range of applications.
6	Learn a variety of advanced mathematical methods and computer techniques.
7	Solve numerical problems involving topics covered.
8	Use activities to give insights into some of the topics.
9	
10	

Topics Covered

Charges and matter, the electric field, Gauss' law, the electric potential, the magnetic field, Ampere's law, Faraday's law, electric circuits, alternating currents, Maxwell's equations and electromagnetic waves.

Weekly Topics and Releated Preparation Studies

Week	Topics	Preparation
1	Materials and Electrical Charge	

2	Electric Field	
3	Gauss's Law	
4	Electrostatic Potential	
5	Capacitor and Dielectrics	
6	Current and Resistance	
7	Electromotive force and circuits	
8	Midterm-1	
9	Magnetic Field	
10	Ampere's Law	
11	Faraday's Law	
12	Midterm-1	
13	Material Magnetic Properties. Inductance	
14	Alternating Currents	
15	Maxwell's Equations	
16	Final Exam	

Textbook
Physics for Scientists and Engineers with Modern Physics, by Giancolli
Physics for Scientists and Engineers with Modern Physics, by Fishbane, Gassiorowıcz, Thornton

Assessment System		
Works	**Number**	**Contribution**
Attendance		
Laboratory		
Practice		%10
Field Study		
Course-Specific Internship (if applicable)		
Quizzes		
Homework		
Presentation		
Project		
Report		
Seminar		
Midterm Exams / Midterm Jury	2	% 50
Final Exam / Final Jury	1	% 40
	Total	**% 100**
Contribution to the success grade of semester studies		% 40
Contribution of the studies at the end of semester to the success grade		% 60
	Total	**% 100**

Course Category	
Basic Vocational Courses	X
Expertise / Field Courses	
Support Courses	
Communication and Management Skills Courses	

Transferable Skill Courses	

The Relationship between Course Learning Outcomes and Program Competencies							
No	**Program Competencies / Outcomes**	**Contribution Level**					
		1	**2**	**3**	**4**	**5**
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

ECTS/Workload Table			
Activities	**Number**	**Time (h)**	**Total Workload**
Course hours (Including exam week: 16 x total weekly course hoursi)	16	3	48
Laboratory	16	2	32
Application			
Course specific internship			
Field Study			
Out-of-class study time	16	2	32
Presentation/Seminar Preparation			
Projects			
Reports			
Homeworks	3	2	6
Quizzes			
Preparation time for Midterm Exams / Midterm Jury	2	15	30
Preparation time for Final Exam / Final Jury	1	15	15
Total Workload	**(178/40 = 4.45)**		**178**