



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

<b>COURSE:</b> General Physics II				
<b>CODE:</b> PHYS102		<b>SEMESTER:</b> SPRING		
<b>LANGUAGE:</b> ENGLISH		<b>TYPE:</b> COMPULSORY		
<b>PRE-REQUISITES:-</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>CREDIT</b>	<b>ECTS</b>
<b>CO-REQUISITES:-</b>				
<b>WEEKLY HOURS:</b>	3	2	4	6

**CONTENT OF THE COURSE:**

Definition of charge and electric fields. Determination of electric field due to a point charge or to a charge distribution. Using Gauss's law for symmetric charge distributions. Definition of electric potential and capacitance. Foundation of basic circuit elements. Definition of magnetic field and source of magnetic fields. Inductance and analyses of basic direct and alternating circuits. Using Maxwell's laws to describe the light as an electromagnetic wave.

**OBJECTIVE OF THE COURSE:**

The main objective of this course is to teach students the fundamental laws of electricity and magnetism and how to use this knowledge in understanding the operation of basic electrical and magnetic circuit elements. This course will also teach students the description of light as electromagnetic waves.

**WEEKLY SCHEDULE**

<b>Week</b>	<b>Topics</b>
1	Electric Charge and Electric Field
2	Electric Charge and Electric Field
3	Gauss's Law
4	Gauss's Law
5	Electric Potential
6	Electric Potential
7	Capacitance and Dielectrics
8	MIDTERM
9	Current, resistance, and electromotive
10	Current, resistance, and electromotive
11	Direct-Current circuits
12	Direct-Current circuits
13	Magnetic field and magnetic forces
14	Magnetic field and magnetic forces

**TEXTBOOK:**

SEARS AND ZEMANSKY'S University Physics with Modern Physics, 14th Ed. by Young and Freedman, Pearson (2016).

**REFERENCE BOOKS:**

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<b>LO3</b>	1	3	1	0	0	0	0	0	0	0	0
<b>LO4</b>	1	1	0	3	0	0	0	0	0	0	0
<b>LO5</b>	1	1	0	0	0	0	0	0	0	0	0
	PO: Program Outcomes   LO: Learning Outcomes Values: 0: None   1: Low   2: Medium   3: High										

<b>LEARNING OUTCOMES OF THE COURSE:</b>	<b>PROGRAM OUTCOMES:</b>
<p>LO1: Applying knowledge of math and science to various problems in electricity and magnetism. LO2: Learning electric and magnetic field concept and motion of charged particles in electric and magnetic fields. LO3: Learning how to determine fields due to a static charge distribution or to a charge flow. LO4: Learning operation and design of basic electric circuit elements and their everyday applications. LO5: Understanding propagation of light in the vacuum and in a medium.</p>	<p><b>PO1:</b> Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p><b>PO2:</b> Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p><b>PO3:</b> Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p><b>PO4:</b> Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p><b>PO5:</b> Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p><b>PO6:</b> Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p> <p><b>PO7:</b> Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p><b>PO8:</b> Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p> <p><b>PO9:</b> Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p><b>PO10:</b> Knowledge about business life practices such as project management, risk management,</p>

	<p>and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p><b>PO11:</b> Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>
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