ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151221198 - 151241198   **COURSE TITLE:** Physics I

Semester	Weekly Hours		COURSE			
	Theoretical	**Practical**	**Credits**	**ECTS**	**Type**	**Language**
1	3	0	3	3	Compulsory (x) Elective ( )	Turkish ( ) English (x)

Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).			
Math and Basic Science	**Electrical Engineering** [mark (√) if there is high design content]	**General Education**	**Humanities**
3	( )		

Assessment	THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES		
Midterm	**Type**	**Number**	**%**	**Activity Type**	**Number**	**%**
	Midterm	1	40	Quiz		
	Quiz			Lab performance		
	Homework			Report		
	Project			Oral exam		
	Other (Present.)			Other (………)		
Final		1	60			
Makeup exam (Oral/Written)	Oral					

Prerequisites	
Brief content of the course	Measurement; vectors; motion along a straight line; motion in two and three dimensions; force and motion I; force and motion II; kinetic energy and work; conservation of energy; center of mass and linear momentum; rotation; rolling, torque and angular momentum; equilibrium and elasticity; gravitation; oscillations.
Objectives of the course	To provide a basic understanding of Newtonian mechanics and conservation laws.
Contribution of the course towards professional education	Define problems in physical systems, formulate and solve them analytically; in general develop problem solving skills.
Outcomes of the course	1. Understand vector and scalar quantities. 2. Identify, formulate, and solve problems analytically that appear in physical systems. 3. Analyze and resolve natural phenomenon. 4. Associate the gained knowledge, analyze and interpret data. 5. Apply and link the gained knowledge of natural sciences to interdisciplinary fields. 6. Correlate and apply gained knowledge directly with technology and industry. 7. Use techniques and skills necessary for engineering practice.
Textbook of the course	1. **Halliday, D., Resnick, R., and Walker, J. (2008).** Fundamentals of Physics (8th Edition). John Wiley & Sons, Inc. 2. **Serway, R.A., Beichner, R.J.,** Physics For Scientists and Engineers with Modern Physics (2007), Harcourt College Publishers
Other reference books	1. **Young, H.D, Freedman, R.A. (2006).** University Physics Volume1 (12th Edition). Pearson/Addison Wesley 2. **Ohanian, H.C. (1989).** Physics (2nd Edition) New York: W.W. Norton & Company, Inc. 3. **Giancoli, D.C. (2004).** Physics: Principles with Applications (6th Edition). Pearson Education Inc.
Required material for the course	

WEEKLY PLAN OF THE COURSE

Week	Topics
1	Vectors
2	Kinematics in one dimension
3	Kinematics in two and three dimensions
4	Dynamics – Newton's Law
5	Dynamics – Forces and the solution of the equation of motion
6	Work and energy
7	Conservation of energy
8	Midterm
9	Midterm
10	Gravitation
11	Systems of particles
12	Collisions
13	Kinematics and Dynamics of a rigid body
14	Oscillations
15,16	Final

Contribution of the course to the program outcomes

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and E&E Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving problems of Computer Engineering	X			
2	Ability to identify complex engineering problems in E&E Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.		X		
3	Having skills to apply modern design methods to design a complex system, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the E&E Engineering.				X
4	Having skills to develop, select and apply modern techniques and tools needed for Engineering applications, skills to use information technology effectively.			X	
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of E&E Engineering problems				X
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.				X
7	Communicating effectively in oral and written form in Turkish and one foreign language.				X
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				X
9	Understanding of professional and ethical responsibility				X
10	Information on project management, change management and risk management practices, awareness on entrepreneurship, innovation and sustainable development.				X
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				X

Scale for assessing the contribution of the course to the program outcomes:

   4: High   **3: Medium**   **2: Low**   **1:None**

Name of Instructor(s):

Signature(s):

                                                                                 Date: