T.C.

ESKİŞEHİR OSMANGAZİ UNİVERSİTY

FACULTY OF ENGINEERING and ARCHITECTURE

ELECTRICAL and ELECTRONICS ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Physics I	151221198

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
1	3	0	3	3

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
3				

Course Language	Course Level	Course Type
English	Undergraduate	Compulsory

Prerequisite(s) if any	
Objectives of the Course	Teaching Newtonian mechanics as one of the fundamental fields in physics; hence to provide students the proper problem solving strategies in related topics and helping to establish a foundation for their succeeding coursework.
Short Course Content	Units, vectors, motion along a straight line, motion in two-three dimensions, applications of Newton's laws, work, kinetic energy, potential energy, conservation of energy and momentum, rotational motion of rigid bodies, gravitation, and simple harmonic motion.

	Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1	Proper use and conversion of units.	1, 2	1	A
2	To be able to perform mathematical operations on vectors.	1, 2	1, 10	A
3	Investigating the translational motion.	1, 2	1	A
4	Applying Newton's law of dynamics problems.	1, 2	1, 2, 5	A
5	Learning and exercising the concepts of work, kinetic & potential energy, and conservation of energy on related problem solving.	1, 2, 5	1, 2, 5, 7	A
6	To be able to solve problems on impulse, linear momentum, collisions, conservation of momentum.	1, 2	1, 2, 5, 8	A
7	To be able to solve problems on rotation and rolling without slipping problems.	1, 2	1, 2	A
8	To be able to solve problems on gravitation.	1, 2	1, 2	A
9	To build quantitative skills and critical thinking by evaluating the physical interpretation of mathematical results; hence, obtaining knowledge on physical approach and physical modeling.	1, 2, 3, 4, 5	1, 2, 5, 6, 7, 8, 10	A, K

***Teaching Methods** **1:**Expression, **2:**Discussion, **3:**Experiment, **4:**Simulation, **5:**Question-Answer, **6:**Tutorial, **7:**Observation, **8**:Case Study, **9:**Technical Visit, **10:**Trouble/Problem Solving, **11:**Induvidual Work, **12**:Team/Group Work, **13**:Brain Storm, **14:**Project Design / Management, **15:**Report Preparation and/or Presentation

****Measuring Methods** **A:**Exam, **B:**Quiz, **C:**Oral Exam, **D:**Homework, **E:**Report, **F:**Article Examination, **G:**Presentation, **I:**Experimental Skill, **J:**Project Observation, **K**:Class Attendance; **L**:Jury Exam

10	Ability to connect the knowledge gained in basic sciences to application and interdisciplinary fields.	3, 6	8, 10, 13	K

Main Textbook	Young H.D., Freedman R.A. University Physics with Modern Physics, 14th Edition (2015), Pearson.
Supporting References	Halliday, D., Resnick, R., and Walker, J. (2008). Fundamentals of Physics (8th Edition). John Wiley & Sons, Inc. Serway, R.A., Beichner, R.J., Physics For Scientists and Engineers with Modern Physics (2007), Harcourt College Publishers.
Necessary Course Material	

Course Schedule	
1	Units, unit conversions, and physical quantities.
2	Vectors.
3	Motion along a straight line.
4	Motion in two and three dimensions.
5	Newton's laws.
6	Application of Newton's laws.
7	Work and kinetic energy.
8	Mid-Term Exam
9	Potential energy and conservation of energy.
10	Rotational motion of rigid bodies.
11	Rotational dynamics.
12	Rotational dynamics.
13	Equilibrium and elasticity.
14	Gravitation.
15	Simple harmonic motion
16,17	Final Exam

***Teaching Methods** **1:**Expression, 2**:**Discussion, **3:**Experiment, **4:**Simulation, **5:**Question-Answer, **6:**Tutorial, **7**:Observation, **8**:Case Study, **9:**Technical Visit, **10:**Trouble/Problem Solving, **11:**Induvidual Work, **12**:Team/Group Work, **13**:Brain Storm, **14:**Project Design / Management, **15:**Report Preparation and/or Presentation

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Calculation of Course Workload			
Activities	**Number**	**Time (Hour)**	**Total Workload (Hour)**
Course Time (number of course hours per week)	14	3	42
Classroom Studying Time (review, reinforcing, prestudy,….)	14	1	14
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	15	15
Final Exam	1	2	2
Studying for Final Exam	1	15	15
		Total workload	**90**
		Total workload / 30	**3**
		Course ECTS Credit	**3**

Evaluation	
Activity Type	**%**
Mid-term	40
Quiz	
Homework	
Final Exam	60
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	**PROGRAM OUTCOME**	**Contribution**
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving problems of Electrical and Electronics Engineering.	5
2	Ability to identify complex engineering problems in Electrical and Electronics Engineering and related fields, for this purpose having skills to formulate, select, and apply appropriate methods.	5
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 Electrical and Electronics Engineering.	4
4	Having skills to develop, select and apply modern techniques and tools needed for Electrical and Electronics Engineering applications, skills to use information technology effectively.	2
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of Electrical and Electronics Engineering problems.	4
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.	2
7	To communicate and represent effectively in both Turkish and English.	2
8	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.	3
9	Understanding of professional and ethical responsibility.	1
10	Information on project management, change management and risk management practices, awareness on entrepreneurship, innovation and sustainable development.	1
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.	1

LECTUTER(S)				
Prepared by	Arş Gör. Dr. Selçuk Temiz			
Signature(s)				

Date:06.06.2024