School of Engineering and Natural Sciences / Computer Engineering (English)

2023 - 2024 Academic Year

PHYSICS I

Syllabus

Course Description					
Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
PHYSICS I	COE1110746	Fall Semester	3+0	3	5

Prerequisites Courses	
Recommended Elective Courses	
Language of Instruction	English
Course Level	First Cycle (Bachelor's Degree)
Course Type	Required
Course Coordinator	Assoc.Prof. Muhammed Fatih TOY
Name of Lecturer(s)	Lect.Dr. Mustafa ERYÜREK
Assistant(s)	
Aim	This is the first course in the two-semester sequence of calculus-based introductory physics courses. The course is designed to meet the needs of student majoring in Engineering and Applied Sciences. Main content of this course is an introduction Newtonian mechanics. The aim of the course is to demonstrate the ability of critical thinking to analyze problems or situations involving the fundamental principles of physics.
Course Content	This course contains; Units, Physical Quantities, and Vectors,Motion along a straight line,Motion in Two or Three Dimensions,Newton's Laws of Motion,Applying Newton's Laws,Work and Kinetic Energy,Potential Energy and Energy Conservation I,Potential Energy and Energy Conservation II,Momentum, Impulse, and Collisions,Rotation of Rigid Bodies,Dynamics of Rotational Motion I,Dynamics of Rotational Motion II,Gravitation,Periodic Motion.

Course Learning Outcomes	Teaching Methods	Assessment Methods
1. Students can carry out fundamental vectorial operations and calculations with physical quantities.	10, 12, 14, 6, 9	A, G
2. Students gain basic knowledge about kinematics, work, energy, impulse, momentum, rotational kinematics and dynamics, and periodic motions.	10, 12, 14, 6, 9	A, G
3. Students define the laws of physics, uses them in problem solving; reconciles with nature.	10, 12, 14, 6, 9	A, G
4. Students gain the ability to apply mathematical knowledge in problem solving.	10, 12, 14, 6, 9	A, G
5. Students can interpret, evaluate, and analyze data via examining physics concepts and ideas.	10, 12, 14, 9	A, G

Teaching Methods	10: Discussion Method, 12: Problem Solving Method, 14: Self Study Method, 6: Experiential Learning, 9: Lecture Method
Assessment Methods	A: Traditional Written Exam, G: Quiz

Lecture Schedule

Sequence	Topics	Preliminary Preparation
1	Units, Physical Quantities, and Vectors	
2	Motion along a straight line	
3	Motion in Two or Three Dimensions	
4	Newton's Laws of Motion	
5	Applying Newton's Laws	
6	Work and Kinetic Energy	
7	Potential Energy and Energy Conservation I	
8	Potential Energy and Energy Conservation II	
9	Momentum, Impulse, and Collisions	
10	Rotation of Rigid Bodies	
11	Dynamics of Rotational Motion I	
12	Dynamics of Rotational Motion II	
13	Gravitation	
14	Periodic Motion	

Evaluation Methods	Weight(%)
Midterm Exam	30
General Exam	70

Resources

Serway R.A, Jewett, Jr J.W. Physics for Scientists and Engineers with Modern Physics. Brooks Cole, 9th Edition

Young H.D, Freedman R.A. Sears and Zemansky's University Physics with Modern Physics. Pearson, 13th EditionCollege Physics, OpenStax College (From: https://openstaxcollege.org/textbooks/college-physics)