TOROS ÜNİVERSİTESİ

Faculty Of Engıneerıng
Industrıal Engıneerıng (Englısh)

Course Information

PHYSICS I					
Code	**Semester**	**Theoretical**	**Practice**	**National Credit**	**ECTS Credit**
		Hour / Week			
PHY101	Fall	3	2	4	7

Prerequisites and co-requisites	None
Language of instruction	English
Type	Required
Level of Course	Bachelor's
Lecturer	Asst. Prof. Dr. Çağdaş ALLAHVERDİ
Mode of Delivery	Face to Face
Suggested Subject	None
Professional practise (internship)	None
Objectives of the Course	The course’s objective is to introduce students to the fundamental concepts of physics and their practical applications, and to provide students with a foundation to build upon in their future studies. The course introduces to non-major students physical quantities and measurements, mechanical motion, force, work and energy, and oscillations and waves.
Contents of the Course	The topics covered in this course include: • quantitative approach, measurements, quantities, and units; • vectors and manipulations with vectors; • kinematics of mechanical motion and simplest motions; • dynamics of mechanical motion, Newton’s laws, forces, momentum, solving motion using forces; • rotational motion, torque and angular momentum, rotational and rolling motion of solid bodies; • conservation of energy, linear, and angular momentum, significance and application of conservation laws in physics; • simple harmonic oscillations, forced oscillations and resonance, simple wave motion, basic properties of waves.

Learning Outcomes of Course

#	Learning Outcomes
1	Students would have up to date information, software, theoretical and practical knowledge on Physics. Moreover, they will be equipped with knowledge sufficiently to use Physics related resources.
2	Students would acquire theoretical knowledge on subject of Physics theories.
3	They could apply the theoretical knowledge gained in the field of Physics
4	Students would be able to analyze the experimental results.
5	They would acquire the ability to figure out the physical concepts and issues in the field of Physics through scientific methods and interprete them.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Introduction. Quantitative approach. Physical quantities. Introduction to the idea of a vector.	Lecturing
2	Introduction to the basics of vector calculus.	Lecturing
3	Mechanical motion and its description; position, speed, and acceleration	Lecturing
4	Simplest mechanical motions; equations of motion, uniform, uniformly accelerated, free fall, ballistic motion, circular motion.	Lecturing

5	Causes of mechanical motion. Inertial motion and inertial reference frames.	Lecturing
6	Newton’s three laws, mechanical forces. Momentum of motion.	Lecturing
7	Midterm	Exam
8	Some simple examples of forces: gravity, weight, normal force, and friction.	Lecturing
9	Relativity of motion, relativity and 1st Newton’s law.	Lecturing
10	Properties of elastic deformation forces; tension, longitudinal, transversal, and shear deformations, elastic modules.	Lecturing
11	Inferring force from motion, 3rd Kepler’s law and Newton’s gravitation law.	Lecturing
12	Force and work, work-energy theorem, kinetic energy.	Lecturing
13	Conservation laws in mechanics; conservation of mechanical energy, conservation of mechanical momentum.	Lecturing
14	Rotational motion, forces and torque	Lecturing
15	Review	Lecturing
16	Final Exam	Exam

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	H.D. Young, R.A. Freedman and A.L. Ford, Sears and Zemansk's University Physics with Modern Physics Technology Update, 13th Edition, ISBN 10: 0-321-89470-7, 2014		
2	Raymond A. Serway, Physics for Scientists and Engineers, 4th edition, Saunders College Pub, 1996		
3	D. Halliday, R. Resnick, J. Walker, Fundamentals of Physics Extended, 9th Edition, Wiley, 2009 ISBN-10: 0-321-64363-1, 2010.		

Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	40%	Final Exam	Final Exam
3	20%	Laboratory	Laboratory

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	Students would have up to date information, software, theoretical and practical knowledge on Physics. Moreover, they will be equipped with knowledge sufficiently to use Physics related resources.	1	1,2
2	Students would acquire theoretical knowledge on subject of Physics theories.	1	1,2
3	They could apply the theoretical knowledge gained in the field of Physics	1,4	1,2,3
4	Students would be able to analyze the experimental results.	1,4	1,2,3
5	They would acquire the ability to figure out the physical concepts and issues in the field of Physics through scientific methods and interprete them.	1,9	1,2,3

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	5	70

2	Course Duration Except Class (Preliminary Study, Enhancement)	14	2	28
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	1	17	17
8	Midterm Exam	1	8	8
9	Quiz	0	0	0
10	Homework	3	3	9
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	0	0	0
14	Final Exercise	0	0	0
15	Preparation for Final Exam	1	15	15
16	Final Exam	1	3	3
				150