

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
PHY101	PHYSICS I	3.00	0.00	2.00	4.00	7.00
Course Detail						
Course Language	: English					
Qualification Degree	: Bachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: We emphasize conceptual understanding and problem solving skills in mechanics. Our goals are for you to continue developing knowledge and intuition about how the world works, to learn to approach, solve, and understand physics problems on both qualitative and quantitative levels, to relate classroom physics to the real world you live in, and to develop a deeper appreciation of the scientific method.					
Course Contents	: Units and vectors, motion in 1D, motion in 2D and 3D, laws of motion, universal law of gravitation, work and kinetic energy, conservation of energy, momentum and impulse, dynamics of rotation, periodic motion					
Recommended or Required Reading	: 1. Main textbook: Physics for Scientists and Engineers, 8th edition (2010) by Raymond A. SERWAY and John W. JEWETT, Thomson - Brooks/Cole. ISBN 2. Physics, Principles with applications, 5th edition (1998) by Douglas C. GIANCOLI, Prentice Hall, Upper Saddle River, New Jersey 07458 3. Fundamentals of Physics, 8th edition (2007) by David HALLIDAY, Robert RESNICK and Jearl WALKER, John Wiley & Sons. Inc. New York.					
Planned Learning Activities and Teaching Methods	: In the lectures we develop the theory, and we study how the theory is applied in solving physics problems. In the lab we perform experiments, which allow us to make the very important connection between the physical theory and the real world. For each lab, you will receive, at least one week prior to the lab date, a handout with all necessary information about the lab. These handouts will include (a) a Study Guide containing the topics a student must be familiar with in order to perform the experiments successfully, (b) descriptions of the experiments to be performed, and (c) the necessary space to complete the lab report.					
Recommended Optional Programme Components	: Students should realize that they have to develop their own way of learning. The instructor introduces the concepts, shows examples and outlines some tricks to solve problems. The instructor will hold office hours for your further questions. The instructor is not a teacher and is not responsible to teach you without any effort from your side. You are responsible to develop your own way of learning.					
Instructors	: Dr. Öğr. Üyesi Aziz Kolkıran					
Instructor's Assistants	: Other instructors: Cem Özdoğan, Gül Yakalı, Erdal Kurt, Gürkan Ergün					
Presentation Of Course	: Theory, Lab, Recitation					
En Son Güncelleme Tarihi:	:					

Course Outcomes

Upon the completion of this course a student :

- 1 Explains measurement and the fundamental unit systems
- 2 Using the concepts of kinematic and dynamic physics, models and analyzes of stationary and moving objects according to the basic laws of physics, produces solutions to real situation problems.
- 3 Uses the laws of conservation of motion, energy and momentum to solve mechanical problems.
- 4 Performs static and dynamic modeling and analysis of solid objects in three dimensions and produces solutions to real-state problems.
- 5 Collects and analyzes data using experimental setups that explain basic kinematic and dynamic processes in mechanics.

Preconditions

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Weekly Contents						
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Physics and Measurement				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
2.Week	*Measurements, One dimensional motion		*1) Measurements and Graphing		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
3.Week	*One dimensional motion, Vectors		*2) Motion on an incline		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
4.Week	*Motion in Two Dimensions, Vectors		*3) Free Fall (with two photogates) 4) Projectile Motion		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
5.Week	*Motion in Two dimensions		*5) Force table		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
6.Week	*Laws of Motion		*6) First Law		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
7.Week	*Laws of Motion, Circular motion		*7) Second Law 8) Third Law		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
8.Week	*Circular motion		*9) Centripetal acceleration		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
9.Week	*Work and Kinetic Energy		*10) Energy theorems using SHM		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
10.Week	*Potential Energy		*11) Impulse and momentum		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
11.Week	*Conservation of mechanical energy		*12) Ballistic Pendulum		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
12.Week	*Momentum and collisions		*13) Collisions		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
13.Week	*Kinematics and dynamics of rolling motion				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
14.Week	*Angular momentum		*15) Conservation of angular momentum with CFA		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	

Assesment Methods %
3 Laboratory : 30.000
6 Final : 40.000
8 Mdtterms : 30.000

ECTS Workload			
Activities	Count	Time(Hour)	Sum of Workload
Vize / Midterms	1	2.00	2.00
Kisa Sınav / Quizzes	7	1.00	7.00
Final / Final	1	1.00	1.00
Derse Katılım / Attending lectures	14	3.00	42.00
Uygulama / Pratik / Application / Practice	12	2.00	24.00
Laboratuvar / Laboratory	7	3.00	21.00

Activities	Count	Time(Hour)	Sum of Workload
Ders Öncesi Biresysel Çalışma / Individual study before lecture	14	2.00	28.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	14	2.00	28.00
Ara Sınav Hazırlık / Preparation for midterm	1	5.00	5.00
Final Sınavı Hazırlık / Preparation for final	1	10.00	10.00
Quiz Hazırlık / Preparation for quizzes	7	2.00	14.00
Ev Ödevi / Homework	2	9.00	18.00
			Total : 200.00
			Sum of Workload / 30 (Hour) : 7
			ECTS : 7.00

Program And OutcomeRelation											
	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11
L.O. 1	5	0	0	0	0	0	0	0	0	0	0
L.O. 2	5	0	0	0	0	0	0	0	0	0	0
L.O. 3	5	0	0	0	0	0	0	0	0	0	0
L.O. 4	5	0	0	0	0	0	0	0	0	0	0
L.O. 5	5	0	0	0	5	5	0	0	0	0	0