BASIC PHYSICS I

1	Course Title:	BASIC PHYSICS I
2	Course Code:	FZK1071
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	2
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç. Dr. SEZER ERDEM
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	serdem@uludag.edu.tr, 0 224 2941772, Bursa Uludağ Üniversitesi, Fen-Edebiyat Fakültesi, Fizik Bölümü, Görükle Kampüsü, 16059 Nilüfer/Bursa.
17	Website:	
18	Objective of the Course:	The aim of course is to teach the concepts related to Basic Physics-I, to explain physics laws and relation of between the physical concepts. To teach how to apply the laws of physics to the problem solving. In addition, to reinforce the gained physics knowledge with the laboratory practice.
19	Contribution of the Course to Professional Development:	Gains the ability to solve and analyze problems by learning the basic concepts.
20	Learning Outcomes:	

	1	The student can solve engineering problems by using the basic concepts of physics
	2	The student can produce the solution to complex problems
	3	The student can follow the scientific developments and have knowledge
	4	The student can reinforce own information by doing the experiments in laboratory and associate the information with their own engineering field
	5	The student can analyse and interpret the obtained results
	6	The student can use the vector notation
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21 Course Content:

Course Content:

Week	Theoretical	Practice
1	Length, mass and time standards, dimensional analysis, conversion of units	Working conditions in the laboratory, the creation of groups, general information about laboratory and error calculations

2	Vectors, coordinate systems, vector and scalar quantities, properties of the vectors, vector components and unit vectors	Drawing graph and determine the ways to be followed conclusions based on the received results
3	Motion, position, velocity, instantaneous velocity, acceleration, motion diagrams, motion with constant acceleration in one dimension, free falling bodies, the kinematic equations derived from the mathematical equation, two-dimensional motion of position, velocity and acceleration vectors, motion in two dimensions with constant acceleration, angular shot, uniform circular motion, tangential and radial acceleration, relative velocity and relative acceleration	Taking measurements using vernier caliper, micrometer and spherometer
4	The laws of motion, concept of force, Newton's first law and inertial systems, mass, Newton's second law, the force of gravity and weight, Newton's third law, Newton's laws in some applications, the friction force	Measurement of friction coefficient with the help of an inclined plane
5	Other applications of circular motion and Newton's second laws, the implementation of Newton's second law to the uniform circular motion	Determine calorimeters heat capacity and specific heat of a solid body
6	Energy and energy transfer, work done by a constant force, work done by the changing force, kinetic energy and work-kinetic energy theorem, the conservation of energy	Measuring of acceleration of gravity with the help of reversible pendulum
7	Potential energy, potential energy of a system, conservative and non-conservative	Determine the spring constants by using Hooke's law and the vibration method
9	Impulse and momentum, linear momentum	Examination of movement of an object moving at constant
10	Rigid body rotation around a fixed axis, moment of inertia, parallel axes theorem,	Ballistic pendulum
	gravity, stress, strain, modulus of elasticity	Stokes' law
13	Simple harmonic motion in period, amplitude, displacement, velocity and acceleration, simple harmonic motion in energy, simple pendulum, physical pendulum	Energy and momentum conservation
14	General report	Control of the test reports

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	4.00	56.00
Homeworks	14	4.00	56.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	2.00	2.00
Others	0	0.00	0.00
Final Exams	1	2.00	2.00
Total Work Load			188.00
Total work load / 30 hr			6.20
ECTS Credit of the Course			6.00

22	Textbooks, References and/or Other Materials:	1. Physics for Scientists and Engineers, Raymond A. SERWAY, Robert J. Beichner. 2. Basic Physics, Paul M. FISBANE, Stephen GASIOROWICZ, Stephen T. THORNTON. 3. Sears and Zemansky's University Physics, Hugh D. YOUNG, Roger A. FREEDMAN.
23	Assesment	

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT

Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Test, classic or mixed exam

24	**ECTS / WORK LOAD TABLE**

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	5	0	0	4	0	3	0	0	0	0	0	0	0	0	0
ÖK2	4	5	0	0	4	0	3	0	0	0	0	0	0	0	0	0
ÖK3	4	4	0	0	3	0	3	0	0	0	0	0	0	0	0	0
ÖK4	4	4	0	0	5	0	5	0	0	0	0	0	0	0	0	0
ÖK5	5	4	0	0	5	0	5	0	0	0	0	0	0	0	0	0
ÖK6	4	4	0	0	3	0	3	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**