GENERAL PHYSICS I

1	Course Title:	GENERAL PHYSICS I
2	Course Code:	FZK1073
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	4.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. MUHITDIN AHMETOĞLU
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	afrailov@uludag.edu.tr, 0 224 294 16 99, UÜ Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa
17	Website:	
18	Objective of the Course:	To give fundamental concepts and principles of laser and photonics technology
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Learns development of lasers in history
	2	Has information about fundamental principles of lasers
	3	Has information about optical sensors and modulators
	4	Learns scientific and industrial application areas of lasers and photonics
	5	
	6	
	7	
	8	
	9	
	10	

21 Course Content:

Course Content:

Week	Theoretical	Practice
1	Development of lasers in history, fundamental concepts about lasers	
2	Electromagnetic theory and Maxwell equations	
3	Reflection, refraction and absorption of light	
4	Quantum theory of light-matter interaction I	
5	Quantum theory of light-matter interaction II	

6	Diffraction and propagation of laser beam	
7	Laser types: gas, excimer, solid state and semiconductor lasers	
8	Introduction to photonics	
9	Fiber optics	
10	Optical sensors and modulators	
11	Scientific and industrial application areas of lasers and photonics	
12	Ultrafast lasers and nonlinear optics	
13	Problems	
14	General review	

22	Textbooks, References and/or Other Materials:	1. O. Svelto, Principles of Lasers, (4 ed: Plenum Pres,2007) 2. B.E.A.Saleh and M.C.Teich, Fundamentals of Photonics (2 ed John Wiley & Sons Inc, 2007) 3. A.E.Siegman, Lasers (Univ Science Boks, 1986) 4. E.Hecht, Optics, 4 ed. (Addison Wesley Longman, Inc, 2001) 5. R.W.Boyd, Nonlinear Optics (3 ed Academic Pres, 2008)
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Final Exam	1	100.00
Contribution of Term (Year) Learning Activities to		0.00
Contribution of Final Exam to Success Grade		100.00
Measurement and Evaluation Techniques Used in the		

24	**ECTS / WORK LOAD TABLE**			
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study and preperation		14	5.00	70.00
Homeworks		14	5.00	70.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		0	0.00	0.00
Others		9	3.00	27.00
Final Exams		1	2.00	2.00
Total Work Load				211.00
Total work load/ 30 hr				7.03
ECTS Credit of the Course				5.00

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	0	0	0	3	3	3	0	4	0	0	0	0	0	0	0	0
ÖK2	0	0	0	3	3	3	0	4	0	0	0	0	0	0	0	0
ÖK3	0	0	0	3	3	3	0	4	0	0	0	0	0	0	0	0
ÖK4	0	0	0	3	3	3	0	4	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