

Course Information								
Course Code	T	P	L	C	ECTS	Type C/E	Language TR/ENG etc.	Year/Semester
FİZ4016	3	0	0	3	5	E	TR	4/SPRING
Course Name (Turkish)	Lazer Optiği							
Course Name (English)	Laser Optics							

Unit/Program	Physics Department/Undergraduate Program			
Course Prerequisite	No			
Course Objectives	Students will learn about the working principle of laser, light-matter interaction, properties of laser beam, to provide them with knowledge about the transmission of the laser beam and some application areas of the laser			
Course Outline	General working principle of laser, Quantum fundamentals, Holography and its applications			
Textbook/ Material / Resources	Lasers, Anthony E. Siegman			
Internship Status	No			
Course Precedents				
University Name	Program Name	Course Name	T-P-L-C; ECTS	Type
Sakarya University	Physics	Laser Physics	3-0-0-3; 5	E
Harran University	Physics	Laser and Applications	3-0-0-3; 4	E
The instructor who proposed the course (Title, Name and Surname)			Signature	
Instructors who can teach the course (Title, Name and Surname)			Signature	

Academic justification for the opening of the course? (The effect of course outcomes on program outcomes, etc.)

Brief explanation of the course (theoretical lecture, applications, laboratory, studio, off-campus activity, using software, etc.)
Face-to-face courses will be taught under the supervision of the relevant faculty member.

External Stakeholder Opinions About the Course (It is expected that the opinions to be obtained from the business world that will employ your graduates or from real or legal persons outside the University who have expertise on the subject of the course will be specified. Proof documents must be attached to this form.)	
Stakeholder Name	Opinion (It should be given as a summary, it should not exceed two lines.)

Weekly Course Content Distribution		
Week	Theory	Application/Laboratory
1	Quantum foundations and theory of laser	
2	Types of coherent lasers	
3	The use of laser in industry, medicine and communication systems	
4	Laser spectroscopy	
5	Double-photon spectroscopy	
6	Laser measurement methods	
7	Laser fusion	
8	Laser-guided weapon systems	
9	Midterm Exam	
10	LIDAR	
11	Laser as a source of heat and energy	
12	Holography and its applications	
13	Data storage with holography	
14	Data storage with holography	
15	Final Exam	
16		

Assessment			
Evaluation Criteria	Activity	Custom	Contribution to Success Grade (%)
	Midterm Exams	1	40
	Quizzes		
	Assignments		
	Projects		
	Term Paper		
	Laboratory		
	Other		
	Final Exam	1	60
	Sum:		100
Remarks			

Content Design and Subject Weight (%)	Mathematics and Basic Sciences	60
	Engineering Sciences	40
	Social Sciences	
	Health Sciences	
	Educational Sciences	
	Culture and Art Sciences	
	Design Information	

Workload (ECTS) Calculation			
Events	Number	Duration (Hours)	Total workload (Hours)
Fieldwork			
Midterm Exam Application	1	2	2
Self-Study (including pre-class and exam preparation)	14	2	28
Make-up Exam	1	2	2
Experiment and Observation			
Class Participation (Theory)	14	3	42
Homework			
Final Exam Practice	1	2	2
Laboratory			
Article Review			
Writing an Article			
Reading			
Case Study			
Performance			
Problem Solution			
Project Preparation			
Project Submission			
Quiz			
Report Preparation			
Submitting Reports			
Role/Drama Work			
Seminar			
Oral Exam			
Team/Group Work	12	3	36
Argument	14	1	14
Application/Practice			
Other			
TOTAL WORKLOAD:			126
ECTS CREDITS OF THE COURSE: (The number obtained as a result of Total Workload/25 is calculated by rounding to the whole number.)			5

Program Outcomes (PO)		1	2	3	4	5	6	7	8	9	10	11
		1	2	3	4	5	6	7	8	9	10	11
1	Learns laser production and its importance	5	5	5	4	3	3	4	5	5	3	1
2	Learns the structure and interactions of light	5	5	5	4	3	3	4	5	5	3	1
3	Have knowledge about laser and its application areas	5	5	5	4	3	3	4	5	5	3	1

Organizer: Prof. Dr. Fahrettin YAKUPHANOĞLU

Preparation Date: 20.05.2024