

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-2001	Optics and Waves	3.00	2.00	0.00	4.00	7.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: Bachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: Aimed to gain the basic concepts and knowledge of light and its structure, electromagnetic waves, basic optical laws, wave optics, and geometric optics.					
Course Contents	: 1 : Waves 2 : Electromagnetic waves 3 : Nature and propagation of light 4 : Huygen and Fermat Principles 5 : Geometric Optics 6 : Thin and Thick Lenses 7 : Mirrors 8 : Superposition of waves 9 : Fourier Transformation 10 : Interference 11 : Thin films and Newton Rings 12 : Diffraction 13 : Diffraction in two slits 14 : Grating and Interferometers					
Recommended or Required Reading	: Introduction to Optics, Pedrotti, ISBN: 978-0131499331 Üniversite Fiziği, Cilt 2, Young ve Freedman, ISBN:978-605-4248-01-8 Optik, 4. Baskı, E. Hecht, ISBN:975-6885-02-5					
Planned Learning Activities and Teaching Methods	: Computer, projector, other					
Recommended Optional Programme Components	: YOK					
Course Instructors	: Arş. Gör. Dr. Betül Atalay					
Instructor's Assistants	: YOK					
Presentation Of Course	: Oral lectures with interactive discussions, Homeworks, Applications					

Course Outcomes

Upon the completion of this course a student :

- 1 Learn the concept of waves, physical application of waves and superposition of waves

- 2 investigate wave and particle properties of light
- 3 investigate of optical component and gain the ability to analyze any optical system
- 4 Take the ability of identify physical problems, solve of them with the optical background
- 5 Learn the principal of camera and light analyzing system and determine the basic parameter of optical design

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Wave Motion				
2.Week	*Electromagnetic Waves				
3.Week	*Nature and propagation of light				
4.Week	*Huygen and Fermat Principles				
5.Week	*Geometric Optic				
6.Week	*Thin and Thick Lenses				
7.Week	*Mirrors				
8.Week	*Superposition of waves				
9.Week	*Interference				
10.Week	*Interference				
11.Week	*Thin films and Newton Rings				
12.Week	*Diffraction				
13.Week	*Difraction in two slits				
14.Week	*Review				

Assesment Methods %

3 Presentation/Seminar : 30.000

4 Md Term Exam 1 : 30.000

5 Final : 40.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Ödev	5	2.00	10.00
Final	1	2.00	2.00
Individual study before lecture	14	2.00	28.00

Activities	Count	Time(Hour)	Sum of Workload
Individual study after lecture	14	2.00	28.00
Preparation for midterm	1	10.00	10.00
Preparation for final	1	16.00	16.00
Seminar	1	10.00	10.00
Make-up	1	2.00	2.00
Theoretical Lecturing	14	6.00	84.00
Rapor	1	10.00	10.00
			Total : 202.00
			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	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 1	4	3	3	4	5	4	2	3	2	2	1	3	1	2	2	3	4	4	3	3	3	4	3	4
L.O. 2	4	3	3	3	5	4	4	3	2	1	3	4	2	3	3	5	4	5	3	5	4	4	3	4
L.O. 3	4	3	3	3	4	4	2	3	2	3	2	4	3	2	2	3	4	3	3	4	4	3	4	4
L.O. 4	4	3	5	5	4	5	4	4	5	4	4	4	4	4	4	5	4	4	4	5	5	5	4	4
L.O. 5	4	4	3	4	5	4	4	3	4	4	3	4	4	5	5	4	4	4	4	4	4	3	4	4

Ders/Program Çıktıları İlişkisi																								
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	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24	P.O. 2
4	3	3	4	5	5	4	3	3	3	3	4	3	3	3	4	4	4	3	4	4	4	4	4	3