Fizik Bölümü / PHYSICS /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4014	Optic Desing	3.00	0.00	0.00	3.00	6.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Bachelor
Course Type	:	Optional
Preconditions	:	Not
Objectives of the Course	:	This course aims to teach geometric optics, Lineer algebra for optic system, Introduction to optical design program ZEMAX, investigate optical component and install to the software, optical aberrations
Course Contents	:	Geometric Optic, Lineer algebra for optic, Introduction to Optical Design software ZEMAX, Paraxial ray tracing. Stops, pupils, glass and landscape lenses, Aberrations in general and Merit functions, Spherical aberrations, chromatic aberrations and aberration balancing, Coma, astigmatism, Field curvature, Field flattener, Distortions, achromats, bending achromats and large air-spaced achromat, Field lens and windows, Mirrors and corrector plates, Design a Project
Recommended or Required Reading	:	Introduction to Optics, Pedrotti, ISBN: 978-0131499331 Introduction to Lens Design, Joseph M. Geary, ISBN-13: 978-0943396750 Optik, 4. Baskı, E. Hecht, ISBN:975-6885-02-5
Planned Learning Activities and Teaching Methods	:	Lecturing Assignment Presentation Doing Project Discussion Group work Make critique Reading
Recommended Optional Programme Components	:	Current research topics for students
Instructors	:	Prof. Dr. Mustafa Kurt
Instructor's Assistants	:	NA
Presentation Of Course	:	Face to face

Course Outcomes

Upon the completion of this course a student :

1 Invatigate of optical component and gain the ability of analyze to any optical system

2 learn the principal of camera and light analyzing system and determine the basic parameter of optical design

3 investigate the optical design program ZEMAX.

4 invastigate optical component used in optical design.

5 understand optical abberations.

6 explain optical analyze results..

7 make simple optical design.

Preconditions

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS

Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Geometric Optic				
2.Week	*Lineer algebra for optic				
3.Week	*Introduction to Optical Design software ZEMAX.				
4.Week	*Paraxial ray tracing.				
5.Week	*Stops, pupils, glass and landscape lenses.				
6.Week	*Aberrations in general and Merit functions				
7.Week	*Spherical aberrations, chromatic aberrations and aberration balancing.				
8.Week	*Coma, astigmatism,				
9.Week	*Field curvature.				
10.Week	*Field flattener.				
11.Week	*Distortions, achromats, bending achromats and large air-spaced achromat.				
12.Week	*Field lens and windows				
13.Week	*Mirrors and corrector plates				
14.Week	*Design a Project				

Assesment Methods %

1 Mid Term Exam 1 : 30.000

2 Final : 40.000

3 Proje : 30.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	3.00	3.00
Proje	1	20.00	20.00
Final	1	4.00	4.00
Individual study before lecture	14	2.00	28.00
Individual study after lecture	14	1.00	14.00
Preparation for final	1	20.00	20.00
Class Hours (14 weeks)	14	3.00	42.00
Presentation/Seminar	2	15.00	30.00
Further Study	10	2.00	20.00
		Total :	181.00
		Sum of Workload / 30 (Hour) :	6
		ECTS :	6.00

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	3	3	4	5	3	4	1	1	2	3	3	1	1	5	3	0	0	0	0	0	0	0	0	0
L.O. 2	4	3	4	4	3	4	2	2	2	4	3	1	3	5	2	0	0	0	0	0	0	0	0	0
L.O. 3	4	3	4	4	3	4	1	2	2	2	3	1	2	5	2	0	0	0	0	0	0	0	0	0
L.O. 4	4	3	4	5	2	2	1	2	3	3	1	1	3	5	4	0	0	0	0	0	0	0	0	0
L.O. 5	4	3	4	5	3	3	1	3	2	4	3	1	1	5	2	0	0	0	0	0	0	0	0	0
L.O. 6	4	3	4	5	3	4	1	2	2	3	3	1	2	5	3	0	0	0	0	0	0	0	0	0
L.O. 7	4	3	4	5	3	5	1	2	2	3	1	1	1	5	3	0	0	0	0	0	0	0	0	0

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	4	5	3	4	1	3	2	3	3	1	2	5	3	0	0	0	0	0	0	0	0	0	0