Fizik Bölümü / PHYSICS /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4024	Optoelectronic II	2.00	2.00	0.00	3.00	7.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Bachelor
Course Type	:	Optional
Preconditions	:	Not
Objectives of the Course	:	Photodetectors, fiber optics; fundamentals, Maxwell equations, propagation of electromagnetic waves in fibers, profile of refractive index, multiple and single modes fibers, types of fiber optics, losses, production methods of fibers and their applications.
Course Contents	:	Introduction; history of optical communication, Optical fibers, The concept of optical fiber waveguide , Electromagnetic mod theory; Maxwell equations, Electromagnetic waves, modes of waveguides , Modes of waveguides, Single mode fibers, Midterm exam, Multiple mode fibers, Classes of optical fibers, Producing methods, Losses at optical fibers, Losses at optical fibers , Sensor applications , Sensor applications , Final Exam
Recommended or Required Reading	:	Optoelectronics: An Introduction; J. Wilson, J. Hawkes, Prentice Hall PTR., 0136384951, (ISBN-13: 978-0136384953), 1993 'Optoelektronik', J. Wilson, J.F.B. Hawkes'ten çeviren İbrahim OKUR, Değişim Yayınları, 9789758289110, 2000 'Optics and Lasers: Including Fibers and Optical Waveguides', Matt Young, Springer, 354065741X, (ISBN13: 9783540657415), 2000
Planned Learning Activities and Teaching Methods	:	Lecture and recitation
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 Apply the basic science knowledge.

2 Identify the physical properties and applications of light

3 Describe and solves the natural phenomena.

4 Solve the problems on optical fibers.

5 Relate the knowledge of different disciplines.

6 Relate the obtained information with technology and industry

Preconditions

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS

Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	* Introduction; history of optical communication				
2.Week	* Optical fibers				
3.Week	*The concept of optical fiber waveguide				
4.Week	*Electromagnetic mod theory; Maxwell equations				
5.Week	*Electromagnetic waves, modes of waveguides				
6.Week	*Modes of waveguides				
7.Week	*Single mode fibers				
8.Week	*Midterm exam				
9.Week	*Multiple mode fibers				
10.Week	*Classes of optical fibers				
11.Week	*Producing methods				
12.Week	*Losses at optical fibers				
13.Week	*Sensor applications				
14.Week	*Sensor applications				

Assesment Methods %

1 Mid Term Exam 1 : 40.000

2 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	3.00	3.00
Final	1	3.00	3.00
Individual study before lecture	14	3.00	42.00
Individual study after lecture	14	2.00	28.00
Preparation for midterm	1	20.00	20.00
Preparation for final	1	20.00	20.00
Class Hours (14 weeks)	14	3.00	42.00
Research&Project	2	20.00	40.00
		Total :	198.00
		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	5	3	3	3	3	3	3	4	2	3	1	5	4	4	4	0	0	0	0	0	0	0	0	0
L.O. 2	5	4	4	4	4	5	4	2	2	3	1	4	4	5	4	0	0	0	0	0	0	0	0	0
L.O. 3	4	3	4	3	3	3	3	3	2	4	1	5	3	3	3	0	0	0	0	0	0	0	0	0
L.O. 4	3	4	3	4	3	3	4	4	3	2	1	4	4	4	4	0	0	0	0	0	0	0	0	0
L.O. 5	4	4	3	4	4	4	4	4	2	4	1	4	3	4	5	0	0	0	0	0	0	0	0	0
L.O. 6	2	2	5	2	5	5	3	5	3	4	2	4	4	5	4	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	4	4	4	3	4	4	4	3	4	1	4	4	4	4	0	0	0	0	0	0	0	0	0	0