Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Optoelectronic II	FZK452	8. Semester	2 + 2	3.0	8.0

Prerequisites	None

Language of Instruction	Turkish
Course Level	Bacheclor's Degree (First Cycle)
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assoc. Prof. Dr. Kıvanç SEL
Instructors	Assoc. Prof. Dr. Kıvanç SEL
Assistants	
Course Objectives	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 Content	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
Course Learning Outcomes	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. 7) Communicate effectively with oral and written ways

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Introduction; history of optical communication	Lecture and recitation	
2. Week	Optical fibers	Lecture and recitation	
3. Week	The concept of optical fiber waveguide	Lecture and recitation	

Quick Access

Physics
- Qualification Awarded
- Level of Qualification
- Qualification Requirements and Regulations
- Specific Admission Requirements
- Recognition of Prior Learning
- Profile of the Program
- Program Key Learning Outcomes
- Occupational Profile of Graduates
- Access to Further Studies
- Course Structure & Credits
- Exam Regulations & Assessment & Grading
- Graduation Requirements
- Mode of Study
- Programme Director(or Equivalent)
- Evaluation Questionnaire
- TYYÇ

Course Information
- Course Information
- Weekly Course Content
- Resources
- Assessment
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

4. Week	Electromagnetic mod theory; Maxwell equations	Lecture and recitation	
5. Week	Electromagnetic waves, modes of waveguides	Lecture, recitation and homework	
6. Week	Modes of waveguides ı	Lecture and recitation	
7. Week	Single mode fibers	Lecture and recitation	
8. Week	Midterm exam	Written exam	
9. Week	Multiple mode fibers	Lecture and recitation	
10. Week	Classes of optical fibers	Lecture and recitation	
11. Week	Producing methods	Lecture and recitation	
12. Week	Losses at optical fibers	Lecture, recitation and homework	
13. Week	Losses at optical fibers	Lecture and recitation	
14. Week	Sensor applications	Lecture and recitation	
15. Week	Sensor applications	Lecture and recitation	
16. Week	Final Exam	Written exam	

RESOURCES

Recommended Sources
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

ASSESSMENT

Measurement and Evaluation Methods and Techniques		
Written exam, homework and presentations. (60% Final, 30% midterm, 10% homework and presentation)		
In-Term Studies	**Quantity**	**Percentage**
Mid Term Exam 1	1	40
Total	1	40
End-Term Studies	**Quantity**	**Percentage**
Final Exam	1	60
Total	1	60
Contribution Of In-Term Studies To Overall Grade		40
End-Term Studies		60
Total		100

COURSE CATEGORY

Course Category	Percentage

Core Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5	DK6	DK7
PY1	5	5	5	5	5	5	5	5
PY2	5	5	5	5	5	5	5	5
PY3	4	4	4	4	4	4	4	4
PY4	5	5	5	5	5	5	5	5
PY5	5	5	5	5	5	5	5	5
PY6	5	5	5	5	5	5	5	5
PY7	3	3	3	3	3	3	3	3
PY8	2	2	2	2	2	2	2	2
PY9	4	4	4	4	4	4	4	4
PY10	4	4	4	4	4	4	4	4
PY11	5	5	5	5	5	5	5	5
PY12	4	4	4	4	4	4	4	4
PY13	5	5	5	5	5	5	5	5
PY14	4	4	4	4	4	4	4	4
PY15	5	5	5	5	5	5	5	5

*DK = Course's Contrubution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

.

ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	4	56
Final Exam Preparation	1	33	33
Mid Term Exam Preparation	1	30	30
Assignment 1	1	20	20
Final Exam	1	2	2
Mid Term Exam 1	1	2	2
Assignment 2	1	19	19
Further Study	14	3	42
		Total Workload	204
		Total Workload / 25.5 (s)	8.00
		ECTS Credit of the Course	8