ABDULLAH GÜL UNIVERSITY
GRADUATE SCHOOL OF ENGINEERING & SCIENCE
ELECTRONICS AND COMPUTER ENGINEERING PROGRAM
COURSE DESCRIPTION AND SYLLABUS

Course Title	Code	Semester	T+L Hours	Credit	ECTS
FIBER OPTIC COMMUNICATION	ECE-524	FALL-SPRING	3 + 0	3	10

Prerequisite Courses	None

Type	Selective
Language	English
Coordinator	Assoc. Prof. Ibrahim Ozdur
Instructor	Assoc. Prof. Ibrahim Ozdur
Adjunt	none
Aim	Learning the principles of fiber optic communication systems and components
Learning Outcomes	• Learning light sources • Learning photo detectors. • Learning the fiber optic amplifiers and their gain dynamics. • Learning the nonlinear optical effects on communication • Learning the optical modulation methods. • Learning the optical multiplexing methods
Course Content	• Lasers and LEDs, • Photo-detectors, • Erbium doped fiber amplifiers • Nonlinear optic • WDM, SDM • Fiber optic communication systems

WEEKLY TOPICS AND PRELIMINARY STUDY

Week	Topic	Preliminary Study
1	Basic optical concepts	The relevant articles from the literature
2	An overview of fiber optic systems	The relevant articles from the literature
3	Fiber optic cable and properties	The relevant articles from the literature
4	Semiconductor lasers and properties	The relevant articles from the literature
5	Semiconductor light emitting diodes and properties	The relevant articles from the literature
6	Modulation of Light	The relevant articles from the literature
7	Photo-detector types	The relevant articles from the literature
8	Erbium doped fiber amplifiers	The relevant articles from the literature
9	Nonlinear Optics	"
10	Midterm	The relevant articles from the literature
11	Repeaters in fiber optic communication systems	The relevant articles from the literature
12	Multiplexing methods in fiber optic communication	The relevant articles from the literature
13	Noise in fiber optic links	The relevant articles from the literature
14	Bit Error Rate	The relevant articles from the literature
15	Optical Networks	The relevant articles from the literature
16	Final Exam	

SOURCES	
Lecture Notes	Lecture slides
Other Sources	**Course Textbook:** Fiber optic Communications", Joseph C. Palais, Pearson, 5th **Additional Materials:** 1. "Fiber - optic Communication Systems", Govind P. Agrawal , Wiley, 4th edition

COURSE MATERIALS SHARING	
Documents	Lecture notes, slides and molecular model set
Homeworks	Students will be given one homework each two weeks
Exams	1 Midterm and 1 Final Exam

EVALUATION SYSTEM		
SEMESTER STUDY	**NUMBER**	**CONTRIBUTION**
Midterm	1	20
Homework	7	25
Quiz	7	25
SUB-TOTAL		70
Contribution of Semester Study		70
Contribution of Final Exam	1	30
TOTAL		100

Course Category	
Sciences and Mathematics	30%
Engineering	70%
Social Sciences	0%

RELATIONSHIPS BETWEEN LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS						
No	Program Qualifications	Contribution Level				
		1	2	3	4	5
1	Ability to use math, science and engineering knowledge in advanced research				X	
2	Ability to design, realize and analyze a novel system to solve engineering problems					**X**
3	To be able to use modern measurement equipment, hardware and software for expertise area research				X	
4	Ability to plan and do detailed independent research					**X**
5	Ability to do literature search, technical presentation, and prepare scientific manuscript					**X**
6	Be able to do critical and creative thinking and finding innovative methods					X

*Increasing from 1 to 5.

ECTS / WORK LOAD TABLE			
Activities	Number	Duration (Hours)	Total Work Load
Course Length (includes exam weeks: 16x total course hours)	16	3	48
Out-of-class Study Time (Pre-study, practice)	16	5	90
Internet search, library work, literature search	16	4	64
Presentation	1	21	21
Homework	8	8	64
Midterm	1	15	15
Final Exam	1	20	20
Total Work Load			322
Total Work Load / 30			322/30
Course ECTS Credit			10