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
GEOMETRICAL OPTIC	ECE-521	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 beam optics and Fermats' law • Learning Gaussian beam propagation and intensity profile • Learning the Interference, diffraction and polarisation • Learning the dispersion and aberration • Learning the properties of laser beam • Learning the optical resonators and applications •
Course Content	• Beam optics and Fermats' law • Dispersion and aberration • Gaussian beams • Interference, diffraction and polarisation • Lasers • Optical resonators

WEEKLY TOPICS AND PRELIMINARY STUDY

Week	Topic	Preliminary Study
1	Fundamental concepts	The relevant articles from the literature
2	Beam optics and Fermats' law	The relevant articles from the literature
3	Aberration in optical systems	The relevant articles from the literature
4	Gaussian beams	The relevant articles from the literature
5	Gaussian beam propagation	The relevant articles from the literature
6	Single and double slit interference	The relevant articles from the literature
7	Polarization	The relevant articles from the literature
8	Optical resonators	The relevant articles from the literature
9	Application of optical resonators	"
10	Midterm	The relevant articles from the literature
11	Photon-atom interactions	The relevant articles from the literature
12	Laser types and properties	The relevant articles from the literature
13	Electro-optical devices	The relevant articles from the literature
14	Acousto-optical devices	The relevant articles from the literature
15	Modulation of light	The relevant articles from the literature
16	Final Exam	

SOURCES	
Lecture Notes	Lecture slides
Other Sources	**Course Textbook:** "Fundamentals of Photonics", Bahaa E. A. Saleh, Malvin Carl Teich, 2nd Edition, Wiley **Additional Materials:** 1. "Photonics: Optical Electronics in Modern Communications", Amnon Yariv , Pochi Yeh, 6nd Edition, 2006, Oxford Series in Electrical and Computer Engineering

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