Code and Name:	**FİZ5760 APPLICATIONS OF SEMICONDUCTORS IN ELECTRONICS**
Unit:	Graduate School of Natural and Applied Sciences
Detail:	**Period:** 2023-2024 **Status:** Optional **Class:** 1 **Credits:** 2-2-0-3 **ECTS:** 6 **Language:** Turkish

INSTRUCTOR

Title, Name and Surname:	
Phone:	
Email:	
Social Account:	
Student Day and Time:	

COURSE ASSISTANT

Title, Name and Surname:	.....
Phone:	.....
Email:	.....
Social Account:	.....
Student Day and Time:	.....

Lessons Weekly Program:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			-			

Rendering: **Face-to-face lessons per week 4 It will be done on an hourly basis.**

Place: **YY: Faculty of Science, Department of Physics UE: -**

Purpose: **Aims to teach graduate students the physics and light-matter interactions of semiconductor materials that drive modern optoelectronics and industrial advancements..**

Material: **The course will be taught using the book and lecture notes . *Material contents:* Interaction of solid materials with light Classification of mechanisms, optical materials, characteristic optics in solid materials , Dielectric constant and polarizability , Investigation of the propagation of light through a dense optical medium under classical approaches , Tape-to-tape absorption , Fotol Hopefulness , Excsonies , Free electrons , Fononlar.**

Student Responsibility : **Students have the responsibility to attend 50% of the course and to deliver the activities on time.**

Weekly Lesson Plan

Week	Topic	Method
1	G enel concepts; Conductive, insulating and semiconductor materials ,	YY
2	Energy levels and band structures in atoms	YY
3	Solar cells	YY
4	Light detectors	YY
5	Light diodes	YY
6	Light-emitting optoelectronic circuit elements .	YY
7	Waveguides	YY
8	VISA	YY
9	Optical absorption and optical transitions. Excitons: Free excitons, exciton absorption.	YY
10	Luminescence: Diffusion of light in solid materials, interband luminescence in direct and indirect band materials, photoluminescence.	YY
11	Free Electrons: Investigation of optical properties associated with free electrons, plasma reflectivity, free carrier conductivity, metals, Drude model, band transitions in metals, plasmons	YY
12	Photoconductivity	YY
13	Quantum stark effect	YY
14	Genel tekrar ve kazanım değerlendirilmesi	YY

Assessment and Evaluation

Method			Number	Weight
Break Exam	Exam	Face	1	% 50
	Quiz	It will not be done.	-	
	Homework	Activities will be given before and after the midterm exam.		
	Project	It will not be issued.	-	-
General Exam	Face		1	% 50

Course Outcomes:

1	Lecture k him Water content General about and basic theoretical knowledge To the sahip olmak
2	Understanding the optical properties of solid materials
3	Learning the progression of light through matter with classical and quantum mechanics theory
4	To learn the optical properties of insulators, semiconductors and metallic materials
5	Learning the relationship between the absorption spectrum of a material and the band structure

Course-Specific Explanations:

UE: Distance Education; **YY:** Face-to-Face Education