



Code and Name: FİZ5370 OPTICAL PROPERTIES OF SOLIDS

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: UE:

Purpose: To learn what optical properties depend on and how they are determined for different types of materials

Material: Optical Processes in Semiconductors, J.I. Pankove, Dover Publications, Inc. 1971

Student Responsibility : Conducting preparation and research before and after the lecture.

Weekly Lesson Plan	Week	Topic		Method	
	1	Band structure and calculation in solids		YY	
	2	Absorption of light		YY	
	3	Determination of electronic band transitions and optical band structure		YY	
	4	Relationships between optical constants and Kramers-Kronig relations		YY	
	5	Determination of optical properties of solids and complex dielectric function		YY	
	6	Optical properties of crystalline/amorphous/organic semiconductors, insulators and polymer materials		YY	
	7	Photoelectric emission and photovoltaic effect		YY	
	8	Photoconductivity, photoluminescence and optical fibers		YY	
	9	ARASINAV		YY	
	10	Areas of application of optical materials		YY	
	11	Refractive index dispersion, Burstein-Morse effect and Urbach's rule in crystalline/amorphous solids		YY	
	12	Mobility, transmittance and reflectance in optical solids		YY	
	13	Photochemical effects		YY	
	14	Effects of external factors such as temperature, electric/magnetic field and pressure on optical properties		YY	
Assessment and Evaluation	Method			Number	Weight
	Break Exam	Exam	Face	1	% 50
		Quiz	-	-	
		Homework			
		Project	-	-	-
	General Exam	Face		1	% 50
Course Outcomes:	1	Ability to determine the optical properties of solids			
	2	To be able to determine the relationship between optical properties and structural properties			
	3	To be able to comprehend the effects of physical and chemical behavior on optical processes			
	4	To learn the technological usage areas of optical materials			
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Course-Specific Explanations:

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



T.C.
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Course Syllabus Form

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