



Code and Name: FİZ5540 NUCLEAR MAGNETIC RESONANCE

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 explain the basic physical and chemical principles of NMR spectroscopy, to understand the magnetic properties of atomic nuclei and how these properties are used in spectroscopy. To understand the applications of NMR in various fields such as chemistry, physics, biochemistry, pharmacy and medicine. In particular, to comprehend the role of molecular structures in the determination of molecular structures and the study of various molecular properties.

Material: Nuclear Magnetic Resonance Spectroscopy - Metin Balci

Student Responsibility: Attending classes, submitting assignments on time, and taking exams.

Weekly Lesson Plan	Week	Topic	Method
	1	Nuclear Magnetism, Magnetism	YY
	2	NMR Spectroscopy	YY
	3	NMR Assay	YY
	4	NMR Spectrometer	YY
	5	NMR's Fourier Transform	YY
	6	Quantum Mechanical Interactions	YY
	7	Nuclear Spin Interactions	YY
	8	Nuclear Spin Hamiltonian	YY
	9	Internal and External Magnetic Fields	YY
	10	Dipolar Spin Interactions	YY
	11	NMR Spectrum Analysis	YY
	12	Solid State NMR	YY
	13	Biological NMR	YY
	14	Medical Applications, Advanced NMR Techniques, NMR Spectroscopy and Computer Modeling	YY

Assessment and Evaluation	Method		Number	Weight
	Break Exam	Exam	Face	1 % 50
		Quiz	-	-
		Homework	-	-
		Project	-	-
	General Exam	Face	1	% 50

Course Outcomes:	1	The basic principles of NMR spectroscopy, the magnetic properties of atomic nuclei and how these properties are used in spectroscopy are learned.
	2	How NMR is used in fields such as chemistry, physics, biochemistry, pharmacy and medicine and its importance in the process of determining molecular structures is understood.
	3	Knowledge about advanced NMR techniques is obtained.
	4	Analytical thinking and problem-solving skills by learning how to analyze NMR data are developed.
	5	Learn about the latest developments and future potentials of NMR technology.

Course-Specific Explanations:



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Course Syllabus Form

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