NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY IN ORGANIC STRUCTURE IDENTIFICATION

1	Course Title:	NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY IN ORGANIC STRUCTURE IDENTIFICATION	
2	Course Code:	KIM6014	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. NECDET COŞKUN	
15	Course Lecturers:	Prof. Dr. GANİ KOZA	
16	Contact information of the Course Coordinator:	Prof. Dr. Necdet Coşkun Kimya Bölümü	
17	Website:		
18	Objective of the Course:	The aim of the course is to enhance theoretical knowledge and skills of students (deal with organic synthesis) in one-and two-dimensional NMR techniques so they can use these skills in structural interpretations.	
19	Contribution of the Course to Professional Development:	To be able to solve organic structural issues by 1 and 2D NMR technics	
20	Learning Outcomes:		
		1	Inreasing of theoretical info and skills about NMR structure identification
		2	Using the NMR technique in structure identification with advanced level and acquiring the construe ability of NMR spectrum
		3	Learning in advanced level about of applications of the certain techniques that use in organic compound characterizations
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21	Course Content:		
	Course Content:		
Week	Theoretical	Practice	

1	Basic approaches in structure elucidation - Nuclear Magnetic Resonance - Infrared Spectroscopy - Electronic Spectroscopy - Mass Spectroscopy their applications area	
2	- Electromagnetic spectrum - Detection of molecular weight and molecular formula	
3	- Structural isomers and stereoisomers	
4	- Magnetic properties of nucleus - Chemical shift - Expansion and relaxation - Coupling constants	
5	- Spectrometers and samples - Signal optimization - Dynamic effects, spectra of solid samples	
6	- Factors causing proton chemical shifts	
7	- Saturated and unsaturated aliphatics, chemical shifts of protons bonded to nitrogen and oxygen	
8	- Factors causing carbon chemical shifts	
9	- Saturated and unsaturated aliphatics, carbonyl groups, interpretation of carbon	
11	- Spectral data - Proton-proton interactions (COSY) spectra interpretation	
12	- Total correlation spectroscopy (TOCSY) - Proton-heteronuclear spectra of other interpretation	
14	- carbon-carbon correlations - INADEQUATE experiments and applications	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	1.00	14.00
Homeworks	1	70.00	70.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	50.00	50.00
Total Work Load			176.00
Total work load/ 30 hr			5.87
ECTS Credit of the Course			6.00

22	Textbooks, References and/or Other Materials:	Organik Structural Spectroscopy, Josef B. Lambert, herbert F. Shurvell, David A. Lightner, R. Graham Cooks
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	1	40.00
Final Exam	1	60.00

Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		relative evaluation

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**