



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Spectroscopic Techniques							
Course Code		KİM526		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	9	Workload	225 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is to explain the organic structures and teach how to use modern spectroscopic techniques. In the course, the students will be given information about the theory and practical applications of UV, IR spectroscopy, 1H, 13C and 2D NMR spectroscopy by using a combination of all these techniques, Students will learn how to explain the molecular structures.							
Course Content		Evaluation of Spektrosopic data.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study					
Name of Lecturer(s)		Prof. Yüksel ŞAHİN							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Quiz	7	20

Recommended or Required Reading

1	Spektroskopische Methoden in der organischen Chemie, M. Hesse, H. Meier, B. Zeeh, G. T. Verlag Stuttgart , 1994.
2	Spectroscopic Identification of Organic Compounds, sixth edition by R. M. Silverstein, F. X. Webster, Wiley, 1998.

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to spectroscopic techniques
2	Theoretical	Using and interpration of UV Spectroscopy
	Practice	analysis of some sample.
3	Theoretical	Using and interpration of IR Spectroscopy
	Practice	analysis of some sample.
4	Theoretical	Basic principles of NMR-spectroscopy
	Practice	analysis of some sample
5	Theoretical	Using and interpration of ¹ H-NMR spectra
	Practice	analysis of some sample
6	Theoretical	Using and interpration of ¹ H-NMR spectra
	Practice	analysis of some sample
7	Theoretical	Using and interpration of ¹³ C-NMR spectra
	Practice	analysis of some sample
8	Theoretical	Using and interpration of ¹³ C-NMR-spectra
	Practice	analysis of some sample
9	Preparation Work	An overview of the course topics
	Intermediate Exam	Midterm exam
10	Theoretical	Using and interpration of COSY spectra
	Practice	analysis of some sample
11	Theoretical	Using and interpration of HETCOR spectra
	Practice	analysis of some sample
12	Theoretical	Spectra of chiral molecules and AB systems
	Practice	analysis of some sample
13	Theoretical	Using and interpration of ESR spectroscopy
	Practice	analysis of some sample
14	Theoretical	Using and interpration of MS Spectroscopy
	Practice	analysis of some sample



15	Theoretical	Using and interpretation of X-ray Spectroscopy
	Practice	analysis of some sample
16	Preparation Work	An overview of the course topics
	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Term Project	7	11	0	77
Quiz	7	5	1	42
Midterm Examination	1	30	2	32
Final Examination	1	30	2	32
Total Workload (Hours)				225
[Total Workload (Hours) / 25*] = ECTS				9

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	to be able to define how to determine the chemical structure of a compound of spectroscopic methods of learning.
2	to be able to define the concept based on the principles of spectroscopic methods
3	to be able to find out the preparation of a chemical compound to get spectrum
4	to be able to take the spectrometer and interpret the spectra
5	to be able to recognize the spectra obtained with different methods to combine and the results of the spectrums of lightingstructure

Programme Outcomes (Chemistry Master)

1	To be able to gain proficiency in depths and analysis by statistical methods in the same or a related area depending on the undergraduate competence,.
2	To be able to use the knowledge of his/her field and the skills to solve problems and/or applications in interdisciplinary research.
3	To be able to adopt to evaluate the information and skill his/her field by critical approach.
4	To be able to evaluate the effect of important persons, case and fact on his/her field applications.
5	To be able to gain the ability to discuss write and orally present to a group of literate listener.
6	To be able to communicate orally and written in a foreign language at least at European language B2 level.
7	To be able to use computer programs related to his/her field and have skills for informatics communication.
8	To be able to be careful in protecting social, scientific and cultural ethics in collection data, application and presentation.
9	To be able to develop strategic, political and application plans in his/her field and may evaluate the outcomes in quality periods.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5

