



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Molecular Spectrometry							
Course Code		KİM614		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	201 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Optical spectrochemical methods will be discussed in detail. The principles, instrumentation and usage of each individual technique will be explained. The spectrochemical information concept and spectrochemical methodology and the instrumentation in optical spectrometers will be discussed in detail.							
Course Content		Spectrochemical measurements; Optical components of spectrometry; Resources, transducers and measuring systems; Wavelength dispersion; Dispersive and non-dispersive systems; Signal to noise ratio and improvement; Methodology in spectrochemical analysis; Introduction to molecular spectroscopy; UV-Vis. spectrophotometry; Infrared spectrometry; Molecular luminescence spectrometry; Molecular scattering methods; Surface analysis by spectroscopy and microscopy							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Spectrochemical Analysis. J.D. Ingle, S.R. Crouch. Prentice Hall, 1988
2	Contemporary Instrumental Analysis. K. A. Robinson, J.F. Robinson. Prentice Hall, 2000

Week	Weekly Detailed Course Contents	
1	Theoretical	Spectrochemical measurements
2	Theoretical	Optical components of spectrometry
3	Theoretical	Sources, transformers and measurement systems
4	Theoretical	Wavelength dispersion
5	Theoretical	Dispersive and non-dispersive systems
6	Theoretical	Signal-to-noise ratio and improvement
7	Theoretical	Methodology in spectrochemical analysis
8	Theoretical	Introduction to molecular spectrometry
9	Theoretical	UV and visible region spectrophotometry
10	Intermediate Exam	Midterm exam
11	Theoretical	Infrared spectrometer
12	Theoretical	Molecular luminescence spectrometry
13	Theoretical	Molecular scattering methods
14	Theoretical	Surface analysis by spectroscopy and microscopy
15	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	5	10	2	60
Individual Work	2	20	5	50
Midterm Examination	1	20	2	22



Final Examination	1	25	2	27
Total Workload (Hours)				201
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	
2	
3	
4	
5	

Programme Outcomes (Chemistry Doctorate)

1	Depending on the master degree competences, develops, insights and innovates current and advanced knowledge and/or research in proficiency level.
2	Gains high skill levels in using research methods in the field of his/her study.
3	Comprehends the interaction between disciplines related to his/her field. Reaches to original results using his/her expertise in order to analyze, synthesize and evaluate new and complicated ideas.
4	Enlarges the boundaries of his/her field of knowledge by publishing at least one research paper in national and/or international peer-reviewed journals.
5	Defends his/her original opinions related to his/her field before authority and communicates effectively illustrating his/her competence.
6	May communicate and debate written, orally and visually in European Language Portfolio level C1.
7	Follows the developments in computer software and information and communication technologies developed for his/her research area and uses these in order to solve research problems.
8	Collaborates for scientific research with national and international research teams.
9	Contributes to the course of creation and maintenance of knowledge based society and by introducing the scientific, social and cultural developments to the society he/she is living in.

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	4	5	5	4	5
P2	4	5	5	4	5
P3	4	5	5	4	4
P4	4	5	5	4	4
P5	4	5	5	4	4

