



YOZGAT BOZOK UNIVERSITY FACULTY OF ARTS AND SCIENCES
CHEMISTRY DEPARTMENT COURSE PLAN

Course Code	Course Title	Semester	Course Type (C/E)	T+A+L (Time/Week)	Credit	ECTS	Course Language
KİM473	Instrumental Analysis	7	C	4+0+0	4	6	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	The basic principles of spectroscopy/ devices used in spectroscopy / UV-VIS spectroscopy /IR spectroscopy/ molecular fluorescence spectroscopy/ atomic absorption spectroscopy/ atomic emission spectroscopy
The Aim of the Course	Selection of spectroscopic method for the analysis of a very small amount of substances / construction of the analysis and interpretation of results
Course Level	Undergraduate
Course Language	Turkish
Teaching method	(X) Formal () Online (X) Mixed/Hybrid
Teaching Staff of the Course	Prof. Dr. İsmail AKDENİZ
Prerequisite Course(s) of the Course	-
Learning Outcomes from the Course	<ol style="list-style-type: none">1. The student will learn the basic principles of molecular spectroscopy analysis method.2. The student will learn the basic principles of atomic spectroscopy analysis method.3. The student will knowledge about the structure of the used devices.4. Students learn to evaluate the physical and chemical principles used during the measurements, the working principles of the devices, and the analysis results.5. Applies her/his knowledge and understanding of chemistry to the solution of unconventional qualitative and quantitative problems.6. Performs experiments, collects data, interprets, evaluates results, defines problems parallel to current technological developments, produces solutions against problems encountered in the laboratory.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	Introduction to enstrumental methods, calibration of instrumental methods	
2	Signal and noise, the basic principles of spectroscopy	
3	The basic principles of spectroscopy	
4	Components of the optical device	
5	UV-VIS absorption spectroscopy	
6	Application of UV-VIS absorption spectroscopy	
7	The basic principles of atomic spectroscopy	
8	The basic principles of atomic spectroscopy	
9	Atomic absorption spectroscopy	

10	Atomic emission spectroscopy	
11	Molecular fluorescence spectroscopy	
12	IR spectroscopy	
13	Application of IR spectroscopy	
14	NMR spectroscopy	
15	Final Exam	

Course Learning Resources

1. Principles of Instrumental Analysis Douglas A Skoog F. James Holler Timothy A. Nieman

ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework		
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	7	100
Ratio Of Semester Studies To Semester Success (%)		50
Ratio of Final to Success (%)		50
Total		%100

COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	4	56
Practice			
Forum/ Discussion Application			
Reading			
Internet Scanning, Library Study			
Material Design, Application			
Report Preparation	14	2	28
Presentation Preparation			
Presentation			
Final Exam	1	2	2
Preparation for the Final Exam	1	10	10
Other(s) (Preparation for Quizzes and Exams)	7	2	14
Total Workload			110
Total Workload / 25 (s)			110/25
ECTS Credits of the Course			≅4
Note: The workload of the course will be determined by the instructor on a per-course basis.			

PROGRAM LEARNING OUTPUTS CONTRIBUTION LEVELS

No	Program Learning Outputs	1	2	3	4	5
1	Gains extensive knowledge about the basic chemical properties of matter and uses this knowledge in daily life, industrial scale, and practical chemistry and shares them with the society.				X	

2	Performs experiments, collects data, interprets, evaluates results, defines problems parallel to current technological developments, produces solutions against problems encountered in the laboratory.					X
3	Calculates and processes chemical information and data.					X
4	Applies her/his knowledge and understanding of chemistry to the solution of unconventional qualitative and quantitative problems.			X		
5	Defines and comprehends chemical concepts and theories in Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Analytical Chemistry, Biochemistry.					X
6	Can conduct research in the light of scientific data on any subject in the field of chemistry.			X		
7	Writes, presents, discusses scientific material, and presents it orally to a knowledgeable audience.		X			
8	Brings a chemical approach to the solution of environmental problems, makes environmental analyzes and reports.			X		
9	Knows a foreign language at a level to read and understand the basic terms and processes of the chemist profession.	X				
10	Can use computer software and information and communication technologies at the level required by the field.	X				
11	Adapts and transfers the knowledge gained in the field to secondary education.				X	
12	Apart from the field of chemistry, she/he gains knowledge in different branches of science that she feels close to.			X		
13	Carries out a study independently, makes group work and gains the awareness of taking responsibility.			X		
14	They can develop a positive attitude towards lifelong learning and constantly renew their professional knowledge and skills.				X	
15	Have sufficient awareness of the universality of social rights, social justice, quality culture and protection of cultural values, environmental protection, occupational health and safety.				X	

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