



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
KİM483	Instrumental Analysis Laboratory	8	C	0+4+4	4	4	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	Spectrophotometric substance determination, Spectrophotometric mixture analysis, Infrared spectrum acquisition, Spectrofluorimetric analysis, Metal determination by atomic absorption spectroscopy, Alkali metal determination by flame photometry, Analysis by voltammetry, Substance identification by NMR, Analysis by potentiometric method, Substance identification by thin layer chromatography, Quantitative analysis by HPLC, analysis by GC/MS
The Aim of the Course	To have the knowledge and skills to operate the devices used for the analysis of very small amounts of substances and to perform the analysis
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. Have the ability to operate the devices.2. Have the ability to make analysis.3. Have the ability to evaluate the results.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. Makes calculations about chemical information and data and processes the data.6. Performs experiments, collects data, interprets, evaluates the results, and produces solutions to the problems encountered in the laboratory.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	Spectrophotometric determination of iron	
2	Spectrophotometric simultaneous analysis	
3	The withdrawal of the IR spectrum	
4	Determination of diprydanol in drisentin by spectrofluorimetry	
5	Determination of copper by AAS	
6	Determination of sodium by flamephotometry	
7	Voltammetric determination of paracetamol	
8	Voltammetric determination of paracetamol	
9	Detection of substances by NMR	
10	Determination of pH by potentiometric method	

11	Analysis of Pesticide by GCMS	
12	Analysis of mixture by HPLC	
13	Detection of substances by TLC	
14	Determination of caffeine in cola by HPLC	
15	Final Exam	

Course Learning Resources

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

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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