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
KİM 234	Analytical Chemistry Laboratory I	3	C	0+4+4	4	4	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	Qualitative analysis of anions; Qualitative analysis of cations [Group without common reagent (Group V) ; Ammonium carbonate group (IV. group) ; Ammonium sulfide group (III.group) ; Hydrogen sulfide group (Group II); hydrochloric acid group (group I)]; sprout analysis
The Aim of the Course	To gain theoretical and practical experience to make qualitative systematic analysis of inorganic anions and cations in aqueous solution and sprout samples.
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	1. Upon successful completion of this course, students will perform systematic qualitative analysis of anions. 2. Students will make systematic qualitative analyzes of cation groups. [(Group without common reagent (Group V), Ammonium carbonate group (Group IV), Ammonium sulfide group (Group III), Hydrogen sulfide group (Group II), Hydrochloric acid group)}. 3. Students will perform systematic qualitative analysis of mixtures of cation groups. 4. Students will perform systematic qualitative analysis of mixtures of anion and cation groups. 5. Students will make systematic qualitative analyzes of cations and anions in inorganic shoot samples.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1		General knowledge about laboratory equipment
2		Qualitative analysis of first group cations (Ag, Pb, Hg^{2+})
3		Qualitative analysis of second group cations (Hg, Pb, Bi, Cu, Cd, Sb, As, Sn)
4		Qualitative analysis of third group cations (Al, Cr, Fe, Ni, Co, Mn, Zn)
5		Qualitative analysis of forth group cations (Ba, Ca, Sr, Mg)
6		Qualitative analysis of fifth group cations (Na, K, NH_4^+)
7		Qualitative analysis of first group anions (CO_3^{2-} , SO_3^{2-}, PO_4^{3-}, $C_2O_4^{2-}$, F^-)
8		Qualitative analysis of first group anions (CO_3^{2-} , SO_3^{2-}, PO_4^{3-}, $C_2O_4^{2-}$, F^-)
9		Qualitative analysis of second group anions (SO_4^{2-} , CrO_4^{2-})
10		Qualitative analysis of third group anions (S^{2-}, $Fe(CN)_6^{4-}$, $Fe(CN)_6^{3-}$
11		Qualitative analysis of forth group anions ($S_2O_3^{2-}$, SCN^-, Cl^-, Br^-, I^-)
12		Qualitative analysis of fifth group anions (NO_2^-, NO_3^-, ClO_3^-, BO_2^-)

13		General cation analysis in unknown
14		General cation analysis in unknown
15	Final Exam	

Course Learning Resources

1. Fundamentals of Analytical Chemistry, D. A. Skoog , D. M. West, F.J. Holler S. College Pub. US, 1996
2. Quantitative chemical analysis, D.C. Harris, W.H. Freeman and Company, US, 1982

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					**X**

	encountered in the laboratory.					
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**	