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
KİM353	PHYSIOCHEMISTRY I	FALL	C	4+0+0		6	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	Gases; Kinetic Theory, Equal Distribution of Energy, Heat Capabilities of Gases; Real Gases; Condensation, Intermolecular Forces; Liquids and Their Properties; Solids; Classification of Crystals; Illumination of Crystal Structures; Relationship Between Structure and Macroscopic Properties in Solids; Phase Equilibrium in Simple Systems; Solutions, Colligative Properties; Phase Equilibrium in Heterogeneous Systems
The Aim of the Course	To teach students the properties of gases, liquids and solids and to enable them to understand their basic principles.
Course Level	Bachelor degree
Course Language	Turkish
Teaching method	(X) Formal ( ) Online ( ) Mixed/Hybrid
Teaching Staff of the Course	Prof. Dr. Dr. Ramazan COŞKUN, Prof. Dr. Ali DELIBAŞ, Asst. Prof. Dr. Hatice ARI
Prerequisite Course(s) of the Course	-
Learning Outcomes from the Course	**1-** By understanding the pressure and temperature relationship in gases; will be able to calculate using ideal gases, the combined gas equation and the laws of gases. **2-** The student can use the deviations from the ideal state, the Van der Waals equation of state and the real gas equations for real gases. **3-** The student can explain the transformation into dense states through intermolecular forces. **4-** Student can explain solids, liquids, solutions and colligative properties. **5-** The student can learn phase equilibria in heterogeneous systems.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	Gases (Pressure in Gases; Temperature; Ideal Gases; Combined Gas Equation; Avogadro's Principle)	
2	Gases (Extensive and Intensive Properties; Gas Mixtures; Partial Pressure Concept; Amagat's Law; Barometric Distribution Law; Graham's Law)	
3	Kinetic Theory, Uniform Distribution of Energy, Heat Capacitances of Gases	
4	Real Gases (Deviations from Ideal State; Van der Waals Equation of State; Real Gas Equations; Continuity of States principle)	
5	Real Gases (Van der Waals Isotherms; Reciprocal Principle of States; Equations of State)	
6	Condensation to Condensed States, Intermolecular Forces (Conversion of a Gaseous Matter to Condensed Phases; Liquefaction of Gases; Intermolecular Forces)	
7	Conversion to Condensed States, Intermolecular Forces (Dipole Moment; Polarization of Molecules; Liquid Crystals; Glasses and Glassy Structures)	
8	Liquids and Their Properties	

9	Solids; Classification of Crystals	
10	Illumination of Crystalline Structures	
11	Relationship Between Structure and Macroscopic Properties in Solids	
12	Phase Equilibrium in Simple Systems	
13	Solutions, Colligative Properties	
14	Phase Equilibrium in Heterogeneous Systems	
15	Final Exam	

Course Learning Resources

1. Atkins, P.W., “Fizikokimya”, Trans. Yıldız,S.,Yılmaz,H., Kılıç,E., Bilim Press, Ankara, 2001.
2. Sarıkaya Y., " Fizikokimya ", Gazi Bookstore, Ankara, 2000.
3. Saydan B., Erbil C., Saraç S., " Beta Publishing Publishing, 1999.
4. Cebe M., " Fizikokimya ", Nobel Chemistry, 2006.
5. Yıldız S., " Fizikokimya", Konya, 1998.

ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework	1	30
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	2	70
Ratio Of Semester Studies To Semester Success (%)		%40
Ratio of Final to Success (%)	**1**	%60
Total		%100

COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	4	56
Practice			
Forum/ Discussion Application			
Reading	14	3	42
Internet Scanning, Library Study	14	3	42
Material Design, Application			
Report Preparation			
Presentation Preparation			
Presentation			
Final Exam	1	2	2
Preparation for the Final Exam	2	4	8
Other(s) (Specify: … …. ……..)			
Total Workload			150
Total Workload / 25 (s)			150/25
ECTS Credits of the Course			≅6
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**			