OSTIM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING

COURSE SYLLABUS FORM
2020-2021
Instructors: Dr. Ümmüye Nur Tüzün, ummiyenur.tuzun@ostimteknik.edu.tr

CHEM 101 Engineering Chemistry							
Course Name	**Course Code**	**Period**	**Hours**	**Application**	**Laboratory**	**Credit**	**ECTS**
ENGINEERING CHEMISTRY	CHEM 101	1	4	2	2	3	4

Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Question-Answer, Experiments, Simulations-Animations, Thought Experiments, Argumentation

Course Objective

The objective of this course is to make students understand the basic concepts of the whole general chemistry and also to give them chance for applications of the concepts by experiments, simulations, animations, thought experiments and argumentation processes so to make them gain a much deeper understanding about the concepts.

Learning Outcomes

1. Learning the basic concepts of the whole general chemistry.
2. Solving problems about the basic concepts.
3. Being able to write experiment reports for a much deeper understanding.
4. Understanding the submicroscopic nature of chemistry by simulations and animations.
5. Arguing the thought experiments so to become critical thinkers which is a basic need for engineering education.

Course Outline

Atomic and electronic structure, chemical bonds, molecular structures and bonding laws, the properties of liquids, solids and solutions, chemical equilibrium, chemical kinetics, thermodynamics, metallic complexes, organic chemistry and nuclear chemistry.

Weekly Topics and Related Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1	Atomic and electronic structure	Mortimer's modern university chem.
2	Chemical bonds	Mortimer's modern university chem.
3	Molecular structure and bonding laws	Mortimer's modern university chem.
4	The properties of liquids and solids	Mortimer's modern university chem.
5	The properties of solutions	Mortimer's modern university chem.
6	The properties of solutions	Mortimer's modern university chem.
7	Chemical equilibrium	Mortimer's modern university chem.
8	**Midterm Exam**	
9	Chemical kinetics	Mortimer's modern university chem.
10	Thermodynamics	Mortimer's modern university chem.
11	Thermodynamics	Mortimer's modern university chem.
12	Metallic complexes	Mortimer's modern university chem.
13	Organic chemistry	Mortimer's modern university chem.
14	Organic chemistry	Mortimer's modern university chem.
15	Nuclear chemistry	Mortimer's modern university chem.
16	**Final Exam**	

Textbook(s)/References/Materials:
Modern University Chemistry, Mortimer C. E., Çağlayan.
Analytic Chemistry, Skoog W., Holler, C., Bilim.

Assessment		
Studies	**Number**	**Contribution margin (%)**
Continuity	14	10
Lab		
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework		
Presentation		
Projects		
Report	14	10
Seminar		
Midterm Exams / Midterm Jury	2	10 + 10
General Exam / Final Jury	2	30 + 30
	Total	**100**
Success Grade Contribution of Semester Studies		
Success Grade Contribution of End of Term		
	Total	**100**

Relationship Between Course Learning Outcomes and Program Competencies							
Nu	**Learning Outcomes**	**Contribution Level**					
		1	**2**	**3**	**4**	**5**
1	Learning the basic concepts of the whole general chemistry.					X
2	Solving problems about the basic concepts.					X
3	Being able to write experiment reports for a much deeper understanding.					X
4	Understanding the submicroscopic nature of chemistry by simulations and animations.					X
5	Arguing the thought experiments so to become critical thinkers which is basic need for engineering education.					X

ECTS / Workload Table			
Activities	**Number**	**Duration (Hours)**	**Total Workload**
Course hours (Including the exam week: 16 x total course hours)	16	4	64
Laboratory			
Application			
Course-Specific Internship			
Field Study			
Study Time Out of Class			
Presentation / Seminar Preparation			
Projects			
Reports	14	1	14
Homeworks			
Quizzes / Studio Review			
Preparation Time for Midterm Exams / Midterm Jury	2	16	32
Preparation Period for the Final Exam / General Jury	2	16	32
Total Workload			**142**