
	FACULTY OF ENGINEERING COURSE SYLLABUS FORM	Doküman Kodu	MF.FR.003
		Yayın Tarihi	06.09.2024
		Revizyon No	0
		Revizyon Tarihi	0
		Gizlilik Sınıfı	Hizmet içi

CHEM 101 – ENGINEERING CHEMISTRY				
Course Code	Course Name			Semester
CHEM 101	ENGINEERING CHEMISTRY			Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Summer <input type="checkbox"/>
Hours			Credit	ECTS
Theory	Practice	Lab	3	4
3	0	1		


Course Details	
Department	Aerospace Engineering , Electric-Electronics Engineering, Industrial Engineering, Mechanical Engineering and Nanotechnology Engineering
Course Language	English
Course Level	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>
Mode of Delivery	Face to Face <input checked="" type="checkbox"/> Online <input type="checkbox"/> Hybrid <input type="checkbox"/>
Course Type	Compulsory <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
Course Objectives	The aim of this course is to provide engineering students with a solid foundation in the basic concepts of general chemistry, equipping them with the necessary skills to analyze and solve problems involving chemical principles relevant to engineering.
Course Content	Basic concepts of matter and atomic theory; chemical compounds and reactions; stoichiometry; gas laws; thermochemistry; atomic structure and periodic table; chemical bonding and molecular geometry; intermolecular forces and electrochemistry. Simulations, animations, and thought experiments are also integrated to enhance conceptual understanding and critical thinking.
Course Method/ Techniques	Lecture <input checked="" type="checkbox"/> Question & Answer <input checked="" type="checkbox"/> Presentation <input checked="" type="checkbox"/> Discussion <input checked="" type="checkbox"/>
Prerequisites/ Corequisites	No
Work Placement(s)	No

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<b>Textbook/References/Materials</b>
<b>Main Textbook:</b> Petrucci, R.H., Herring, F.G., Madura, J.D., Bissonnette, C. (General Chemistry: Principles and Modern Applications), Pearson Education.
<b>Supplementary References:</b> - Zumdahl, S.S., Zumdahl, S.A. (Chemistry) - Chang, R., Goldsby, K. (Chemistry) - Atkins, P., Jones, L. (Chemical Principles)

<b>Course Category</b>				
Mathematics and Basic Sciences	<input checked="" type="checkbox"/>		Education	<input type="checkbox"/>
Engineering	<input type="checkbox"/>		Science	<input checked="" type="checkbox"/>
Engineering Design	<input type="checkbox"/>		Health	<input type="checkbox"/>
Social Sciences	<input type="checkbox"/>		Profession	<input type="checkbox"/>

<b>Weekly Schedule</b>		
No	Topics	Materials/Notes
1	<b>Introduction:</b> Why do we need to take this course? Matter and Its Properties, Atomic Theory	Chapters 1–2
2	<b>Chemical Compounds &amp; Reactions:</b> Molecular, Ionic, Organic Compounds; Types of Reactions	Chapters 3–4
3	<b>Reactions in Aqueous Solutions I:</b> Precipitation, acid-base, redox reactions	Chapter 5
4	<b>Reactions in Aqueous Solutions II:</b> Solution stoichiometry, concentration calculations	Chapter 5
5	<b>Gases I:</b> Gas laws and ideal gas behavior	Chapter 6
6	<b>Gases II:</b> Kinetic molecular theory, real gases	Chapter 6
7	<b>Thermochemistry:</b> Heat, work, first law of thermodynamics	Chapter 7
8	<b>Midterm Exam</b>	
9	<b>Electrons in Atoms:</b> Quantum theory, electron configuration	Chapter 8
10	<b>The Periodic Table &amp; Atomic Properties:</b> Periodicity, trends in properties	Chapter 9
11	<b>Chemical Bonding I:</b> Ionic and covalent bonding, Lewis structures	Chapter 10
12	<b>Chemical Bonding I (continued):</b> Bond polarity, formal charges	Chapter 10
13	<b>Chemical Bonding II:</b> Molecular geometry, VSEPR, hybridization	Chapter 11
14	<b>Intermolecular Forces:</b> Properties of liquids and solids	Chapter 12
15	<b>Electrochemistry:</b> Galvanic cells, Nernst equation, applications	Chapter 20
16	<b>Final Exam</b>	

 <b>OSTİM TEKNİK ÜNİVERSİTESİ</b> A N K A R A	<b>FACULTY OF ENGINEERING COURSE SYLLABUS FORM</b>	Doküman Kodu	MF.FR.003
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<b>Assessment Methods and Criteria</b>		
<b>In-term studies</b>	<b>Quantity</b>	<b>Percentage</b>
Attendance		
Lab	4	15%
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize	1	5%
Homework		
Presentation / Seminar		
Project		
Report		
Seminar		
Midterm Exam	1	30%
Final Exam	1	50%
<b>Total</b>		<b>100%</b>
<b>Contribution of Midterm Studies to Success Grade</b>		50
<b>Contribution of End of Semester Studies to Success Grade</b>		50
<b>Total</b>		<b>100%</b>

<b>ECTS Allocated Based on Student Workload</b>			
<b>Activities</b>	<b>Quantity</b>	<b>Duration (Hrs)</b>	<b>Total Workload</b>
Course Hours	14	3	42
Lab	4	1	4
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time	14	2	28
Quiz/Studio/Criticize	1		
Homework			
Presentation / Seminar			
Project			
Report			
Midterm Exam and Preparation for Midterm	1	10	10
Final Exam and Preparation for Final Exam	1	16	16
<b>Total Workload</b>			<b>100</b>
<b>Total Workload / 25</b>			<b>100/25</b>
<b>ECTS Credit</b>			<b>4</b>

