

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
CHE111	1			1
Title	T	A	L	ECTS
Chemistry I	2	1	2	6
Language	German			
Level	Undergraduate	X	Graduate	Postgraduate
Department / Program	Materials Science and Technology			
Forms of Teaching and Learning	Face to face			
Course Type	Compulsory	X	Elective	
Objectives	1.To teach the basic concepts and principles of chemistry. 2.To provide the theoretical and practical knowledge together. 3.To improve the ability of problem solving skill and to make critical decisions. 4.To give the importance of chemistry on the daily life. 5.To help the students thinking positively, logical and to understand the principles of nature.			
Content	Electronic Structure of Atom, Periodic Table, Chemical Compounds, Chemical Reactions, Reactions in Aqueous Solutions, Gases, Thermochemistry, Chemical Bonding -I, Chemical Bonding -II, Liquids, Solids, and Intermolecular Forces, Solutions and Their Physical Properties, Chemical Equilibrium, Acids and Bases, Thermodynamics			
Prerequisites				
Coordinator	None			
Lecturer(s)	Asist Prof.Dr. Sibel Özenler			
Assistant(s)	None			
Work Placement	No			
Recommended or Required Reading				
Books / Lecture Notes	R.H. Petrucci, W.S. Harwood, F.G. Herring, J.F. Madura,, 2007, General (Textbook) Chemistry, Principles and Modern Applications, Pearson Prentice Hall, ISBN:0-13198825-N.J.Tro, 2008, Chemistry-A Molecular Approach, Pearson Prentice Hall, ISBN:0-13233250- T.L. Brown, H.E. LeMay, B.E.Bursten, C.J. Murphy, 2009, Chemistry-The Central Science, Pearson Prentice Hall, ISBN:0-13-235849-.			
Other Sources	General Chemistry, Principles & Modern Applications, R. H. Petrucci, W.S. Harwood, Herring, Prentice Hall International, Inc., 2002, 8th Ed. and all General Chemistry Text Books			
Additional Course Material				
Documents				
Assignments				
Exams				

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Course Composition			
Mathematics und Basic Sciences			100%
Engineering			%
Engineering Design			%
Social Sciences			%
Educational Sciences			%
Natural Sciences			100%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count	Percentage (%)	
Midterm Exam	1	40	
Quiz			
Assignments			
Attendance			
Recitations			
Projects			
Final Exam	1	60	
Total			100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	2	28
Self-Study	5	15	75
Assignments	1	30	30
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory	14	2	28
Projects			
Final Exam	1	2	2
Total Work Load			179
ECTS Points (Total Work Load / Hours)			6
Learning Outcomes			
1	will be able to identify and apply atomic theories and useful relationships from the periodic table,		
2	Make calculations with using stoichiometry in chemical reactions,		

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3	3. Solve different problems about liquid solutions and gases,
4	Make applications about heat, work, enthalpy and internal energy
5	Set up the three dimensional shape of molecular compounds with using their chemical bonding knowledge and some other bond theories.
6	Show the crystal structures of solids and skills to solve related problems,
7	Solve problems about thermodynamic, chemical equilibrium, acid and base concepts and concentration
8	Integrate their chemistry knowledge to their daily life with the realworld examples (examples relevant to the biological sciences, engineering and the environmental sciences)
9	
10	
11	
12	

Weekly Content

1	Properties of Matter and Electronic Structure of Atom
2	Periodic Table and Chemical Compounds
3	Chemical Reactions and Reactions in Aqueous Solutions
4	Gases
5	Thermochemistry
6	Chemical Bonding I
7	Chemical Bonding II
8	Liquids, Solids and Intermolecular Forces I
9	Liquids, Solids and Intermolecular Forces II
10	Solutions and Their Physical Properties
11	Chemical Equilibrium
12	Acids and Bases
13	Thermodynamic
14	General Review
15	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	2	2	2	2		2	1
2	2	2	3	2	1	1	1
3	2	2	3	2	1	1	2
4	2	2	3	2		1	1
5		2	3	2		1	1
6	1	2	3	2		1	1

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7	2	2	3	2	1	1	1
8	1	2	2	2	2	2	2
9							
10							
11							
12							

Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:

Date of Compilation: