

DEPARTMENT OF MATERIALS SCIENCE AND TECHOLOGY **COURSE SYLLABUS**

Course Details											
Code						lemic Y	ear	Semester			
CHE112					1			1			
Title					Т	Α	L	ECTS			
Chemistry II					2	1	2	6			
Language	German										
Level	Undergraduate	X	Graduate		Postgraduate			e			
Department / Program	Materials Science and Technology										
Forms of Teaching and Learning	Face to face										
Course Type	Compulsory	3	x	Electiv	/e						
Objectives	Students acquire the basic knowledge of organic chemistry. They have a good understanding of the common classes of substances, the linking of structure, binding and the classification of organic compounds. Here, in addition to a deeper understanding of the chemical principles, a good understanding of the standard organic-chemical reactions with mechanistic details, the influence of the framework conditions in an organic-chemical reaction and the most important analytical methods (eg mass spectrometry, IR and NMR spectroscopy) should be developed										
Content	Structure and Binding of Organic Molecules, Structure and Reactivity: Introduction to Organic Molecule Reactions: Kinetics, Acidity / Basicity and Mechanisms, Functional Groups, Alkanes and Their Reactions, Nomenclature and Stereochemistry, Alcohols and Ethers and Their Reactions, Alkenes and Haloalkanes, Mass Spectrometry, IR and NMR spectroscopy for structure elucidation, alkynes and their reactions, aromatics and their reactions, reactions of carbonyl compounds, aldehydes, ketones and carboxylic acids, amines and thiols, carbohydrates, amino acids, peptides and proteins										
Prerequisites											
Coordinator	None										
Lecturer(s)	Asist Prof.Dr. Duygu Ekinci										
Assistant(s)	None										
Work Placement	No										
Recommended or Require	d Reading										
Books / Lecture Notes	K.P.C. Vollhardt, N.E. Schore, K. Peter. "Organische Chemie"										
Other Sources	 K.P.C. Vollhardt, N.E. Schore, K. Peter. "Organische Chemie" N.E. Schore. "Arbeitsbuch Organische Chemie" H.G.O Becker et al. "Organikum" R. Brückner "Reaktionsmechanismen" M. Hesse, H. Meier, B. Zeeh. "Spektroskopische Methoden in der organischen Chemie" 										
Additional Course Material											
Documents											
Assignments											



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Exams			
Course Composition			
Mathematics und Basic Sciences			%
Engineering			%
Engineering Design			%
Social Sciences			%
Educational Sciences			%
Natural Sciences			100%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		30
Quiz			
Assignments			
Attendance			
Recitations	1		30
Projects			
Final Exam	1		40
		Total	100

ECTS Points and Work Load

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Activity	Count	Duration	Work Load (Hours)
Lectures	15	2	30
Self-Study	15	5	75
Assignments	10	4	40
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	15	1	15
Laboratory	10	2	20
Projects			
Final Exam	1	2	2
		Total Work Load	184
	6		

Learning Outcomes

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basic principles of organic chemistry, organic molecular bonding, properties and reactivity; properties and behavior of organic compounds. Understanding organic synthesis and mechanisms



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10												
11												
12												
Weekly Cont	ent											
1			ing, polar and i cids and bases	nonpolar mole	cules, intermo	ecular forces,	solubilities, Lev	wis				
2	Introductio	Introduction to orbitals, molecular orbital description of bonding, hybridization, structure of methane										
3	Alkanes- co	Alkanes- conformational analysis, structural isomerism and nomenclature, alkyl groups										
4	Alkenes- structure and bonding, nomenclature, E-Z notation, hydrogenation, relative stabilities.											
5	Stereochemistry											
6	Ring syster	ns										
7		es, substitutio nd E2 mechan	n reactions of a isms	alkyl halides- S	N 2 and SN 1 n	nechanisms. El	imination reac	tions- E1				
8	Overview o	of substitutior	and elimination	on reactions, o	kidation of alco	phols, rates an	d equilibria, sy	ntheses				
9	Functional	Functional Groups I										
10	Functional	Groups II										
11	Functional	Functional Groups III										
12	Functional	Functional Groups IV										
13	Functional	Functional Groups V										
14	Biological	Biological Compounds I										
15	Biological Compounds II											
Contribution of Learning Outcomes to Program Objectives (1-5)												
	P1	P2	P3	P4	P5	P6	P7	P8				
1	3	3	3			3						
2												
3												
4												



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11								
12								
Contribution Level	1. Low 2. Low-intermediate 3. Intermediate /I. High 5. Very High							
Compiled by:								
Date of								
Compilation:								