

ADVANCED ORGANIC CHEMISTRY

1	Course Title:	ADVANCED ORGANIC CHEMISTRY
2	Course Code:	KIM5004
3	Type of Course:	Compulsory
4	Level of Course:	Third Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None However, it is strongly recommended that students should have read Organic Chemistry I and Organic Chemistry II.
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. NEVİN ARIKAN ÖLMEZ
15	Course Lecturers:	Prof. Dr. Necdet COŞKUN Prof. Dr. Mustafa TAVASLI
16	Contact information of the Course Coordinator:	narikan@uludag.edu.tr +90 224 29 41731 Uludag University Faculty of Sciences and Arts Department of Chemistry 16059 Gorukle / BURSA
17	Website:	
18	Objective of the Course:	The aim of the course is, to examine the organic chemistry topics in more detail which were seen by student's during the undergraduate education . Fully comprehend these issues, if have completion of the missing issues, and to provide a background for easily use their knowledges in organic chemistry in their fields
19	Contribution of the Course to Professional Development:	To learn the graduate-level organic chemistry knowledge
20	Learning Outcomes:	
	1	Having detailed information about the chemical bondings in organic molecules
	2	Having adequate knowledge about the three-dimensional structure and stereochemical properties of organic molecules
	3	Recognition of reactive intermediates observed in reactions and writing reactions related to their formation
	4	Developing the ability to propose a valid mechanism for reactions
	5	Recognition the acid-base character agents. To explain the effect of structure on reactivity.
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21	Course Content:			
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Week	Theoretical	Practice		
1	Localized chemical bonding Atomic orbitals, the types of chemical bonds and the formation of organic compounds, hybridization, bond lengths and energies Homolytic and heterolytically bond disossiation			
2	Delocalized chemical bonding Molecules containing delocalized bonding Resonance and resonance rules Aromaticity, hiperconjugation			
3	Stereochemistry Optical activity and chirality Fischer projection formulas The absolute configuration, resolution methods			
4	Stereochemistry Optical purity, cis-trans isomerization, in the open-chain and ring structures, E, Z isomerization Conformational analysis, open-chain and ring structures			
5	Stereochemistry Newman projection, the strained ring systems			
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	Carbocations, the structure and stability Benzylic, allylic structures	14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study	the formation of carbocation Reactive intermediate products	14	2.00	28.00
Homeworks		0	0.00	0.00
Projects	Organometallic compounds Formation reactions of carbanions	0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm Exams	Carbanions, the structure and stability Formation reactions of carbanions	1	55.00	55.00
Others		0	0.00	0.00
Final Exams	Arenes and Nitrenes structure and stability, formation reactions	1	55.00	55.00
Total Work Load				180.00
9	Mechanisms of organic reactions Definition of mechanism			6.00
ECTS Credit of the Course				6.00
	Thermodynamic and kinetic requirements Hammond postulate			
10	Mechanisms of organic reactions Mechanism determination methods Characterization of products and detection of intermediate products Catalytic studies			
11	Mechanisms of organic reactions Isotope labeling Stereochemical evidence Kinetic evidences and isotope effect			

12	Acids and bases Definitions of acid-base in organic chemistry Basic and acid solvents Acid-base catalysts The effect of the structure and the environment over the acidity or alkalinity	
13	The effect of structure on reactivity Inductive effects, resonance and field effects Steric effects, the effects of Conformation	
14	The effect of structure on reactivity Quantitative measurements concerning the effect of structure on reactivity	

22	Textbooks, References and/or Other Materials:	1] Jerry March, Advanced Organic Chemistry, Wiley-Interscience, 2001 [2] Reinhard Bruckner, Advanced Organic Chemistry, Academic Press, 2001 [3] Milton Harris, Carl c. Wamser, Fundamentals of Organic Reaction Mechanisms, John-Wiley, 1976 [4] Graham Solomons, Craig Fyrhle, Organic Chemistry, Wiley, 1995
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23	Assesment
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TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course	It is evaluated by midterm exam, and final exam, which consists of classical questions, and homework.	

24	ECTS / WORK LOAD TABLE
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25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS
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	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	0	3	5	0	0	0	5	0	0	0	0	0	0	0
ÖK2	5	0	0	3	5	0	0	0	5	0	0	0	0	0	0	0
ÖK3	5	0	0	3	5	0	0	0	5	0	0	0	0	0	0	0
ÖK4	5	0	0	3	5	0	0	0	5	0	0	0	0	0	0	0
ÖK5	5	0	0	3	5	0	0	0	5	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications																
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Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High
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