

## ORGANIC CHEMISTRY II

<b>1</b>	Course Title:	ORGANIC CHEMISTRY II	
<b>2</b>	Course Code:	KIM2012	
<b>3</b>	Type of Course:	Compulsory	
<b>4</b>	Level of Course:	First Cycle	
<b>5</b>	Year of Study:	2	
<b>6</b>	Semester:	4	
<b>7</b>	ECTS Credits Allocated:	4.00	
<b>8</b>	Theoretical (hour/week):	4.00	
<b>9</b>	Practice (hour/week):	0.00	
<b>10</b>	Laboratory (hour/week):	0	
<b>11</b>	Prerequisites:		
<b>12</b>	Language:	Turkish	
<b>13</b>	Mode of Delivery:	Face to face	
<b>14</b>	Course Coordinator:	Prof. Dr. MUSTAFA TAVASLI	
<b>15</b>	Course Lecturers:	Prof. Dr. NECDET COŞKUN	
<b>16</b>	Contact information of the Course Coordinator:		
<b>17</b>	Website:		
<b>18</b>	Objective of the Course:		
<b>19</b>	Contribution of the Course to Professional Development:		
<b>20</b>	Learning Outcomes:		
		<b>1</b>	Learning the basic organic chemistry terms
		<b>2</b>	Realizing the general properties of organic compounds
		<b>3</b>	Learning the risks about organic compounds (personal and environmental) and using the chemicals carefully
		<b>4</b>	Learning the reactions of some main organic functional groups.
		<b>5</b>	Understanding and being able to comment on the reaction mechanisms.
		<b>6</b>	Being able to plan some serried reactions.
		<b>7</b>	-Being able to comment on the problems about organic chemistry and getting skills for solving the problems.
		<b>8</b>	
		<b>9</b>	
		<b>10</b>	
<b>21</b>	Course Content:		
		<b>Course Content:</b>	
Week	Theoretical	Practice	

1	<p>Ethers and Epoxides</p> <ul style="list-style-type: none"> <li>• Classification-Symmetric and Asymmetric</li> <li>• Physical properties and Dipole-Dipole Interactions</li> <li>• Nomenclature</li> <li>• Syntheses</li> </ul> <p>? Dehydration of Alcohols  ? Williamson Ether Synthesis  ? Addition of alcoxymercury-mercury elimination to alkenes  ? Hydroxyboration of alkenes oxidation</p> <ul style="list-style-type: none"> <li>• Reactions:</li> </ul> <p>Breaking up with HI</p>	
2	<p>Epoxides</p> <p>? Nomenclature  ? Syntheses  ? Reactions</p> <p>Alkenes I: Properties and Preparation</p> <ul style="list-style-type: none"> <li>• Nomenclature with (E)/(Z) System</li> <li>• Relative Stability of Alkenes Sycloalkenes</li> </ul>	
3	<ul style="list-style-type: none"> <li>• Syntheses of Alkenes: Elimination reactions over (E1/E2).</li> </ul> <p>? From alkylhalides  ? From alcohols</p> <p>Stability of carbocation and Molecular Rearrangements</p>	
4	<p>Alkenes II: Electrophilic Addition Reactions</p> <p>? Addition of Hydrogenhalides (Markovnikov Rule)  ? Addition of sulphuric acid  ? Addition of water  ? Addition of Bromine / Chlorine</p>	
5	<p>? Formation of Halohydrin  ? Hydroboration  ? Oxymercury Addition  ? Carben Addition  ? Oxidation  ? Reduction</p>	
6	<p>Alkines</p> <p>Nomenclature</p> <p>The acidity of terminal alkynes and Nucleophilicity</p> <ul style="list-style-type: none"> <li>• Syntheses:</li> </ul> <p>From Elimination (E1/E2) Reactions</p> <ul style="list-style-type: none"> <li>• Reactions:</li> </ul> <p>? Bromine / Chlorine Addition  ? Hydrogenhalide Addition  ? HgSO<sub>4</sub> catalised Hydration  ? Hydroboration  ? Reduction  ? Oxidation</p>	
7	<p>Nuclear Magnetic Resonance Spectrometer</p> <p>? Nuclear Spin: The source of the signal (Shielding / Deshielding)  ? Chemical shift (Equivalent / Nonequivalent Protons)  ? Signal Splitting (Spin-Spin Coupling)  Proton NMR Spektrums and Rate İşlemleri</p>	
8	<p>Benzene and Aromaticity</p> <p>? Nomenclature of benzene derivatives  ? The structure and stability of benzene</p>	

<b>9</b>	? Aromaticity and Hückel Rule ? Aromatic Ions ? Benzenoid Aromatic Compounds ? Heterocyclic Aromatic Compounds	
<b>10</b>	Electrophilic Aromatic Substitution Reactions • General Mechanism: Arenium Ions ? Halogenation of Benzene ? Nitration of Benzene	
<b>11</b>	? Sulphonation of Benzene ? Alkylation of Benzene - Friedel-Crafts ? Acylation of Benzene - Friedel-Crafts	
<b>12</b>	Aldehydes and Ketones: Nucleophilic Addition Reactions to Carbonyl Group • Nomenclature • Physical Properties • Syntheses ? From oxidation of Alcohols ? From breaking up alkenes with ozone	
<b>13</b>	? Reactions: Nucleophilic Addition Reactions to Carbonyl Group ? Addition of Alcohols ? Addition of Ammonia and Derivatives ? Addition of Hydrogencyanide	
<b>14</b>	? Addition of Ylides (Wittig Reaction) ? Addition of Organometallic Reagents (Reformatsky Reaction) ? Reduction ? Oxidation	
<b>22</b>	Textbooks, References and/or Other Materials:	[1] J. McMurry, Organic Chemistry, Brooks/Cole Publishing Comp., 1992. [2] P. Y. Bruice, Organic Chemistry, Prentice Hall, 2001.
<b>23</b>	Assesment	
<b>TERM LEARNING ACTIVITIES</b>		
	<b>NUMBER</b>	<b>WEIGHT</b>
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		
<b>24</b>	<b>ECTS / WORK LOAD TABLE</b>	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	4.00	56.00
Practicals/Labs	0	0.00	0.00
Self study and preperation			
Homeworks	0		
Projects			
Field Studies			
Midterm exams	1		
Others			
Final Exams	1		
Total Work Load			
Total work load/ 30 hr			
ECTS Credit of the Course			4.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LO: Learning Objectives    PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>			<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>			