



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
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Bachelor of Science in Chemistry

MODULE HANDBOOK

Module name:	Fundamentals of Organic Chemistry
Module level, if applicable:	Undergraduate
Code:	KIM6407
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	2 nd
Module coordinator:	C. Budimarwanti, M.Si.
Lecturer(s):	1. C. Budimarwanti, M.Si. 2. Karim Theresih, SU.
Language:	Indonesia and English
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	<ul style="list-style-type: none">• Lectures: 150 minutes lectures, 180 structured activities and 180 individual study per week• Laboratory work: 170 minutes includes the laboratory work and it's reporting per week
Workload:	Total workload of the activity is 181,33 hours per semester which consists of 150 minutes lectures, 180 structured activities and 180 individual study and also 170 minutes laboratory work with it's reporting per week for 16 weeks
Credit points:	4 SKS (7 ECTS) with the details of 3 SKS (5 ECTS) lectures and 1 SKS (2 ECTS)
Prerequisites course(s):	General Chemistry
Course Outcomes	After taking this course, the students have ability to: CO1. Students can and are able to describe various organic molecular structure concepts CO2. Students are able and understand the resonant structure of various compounds for the foundation of organic reactions. CO3. Students are able and understand the nature, structure, nomenclature and reactions of alkanes and cycloalkanes compounds CO4. Students are able and understand the conformation of alkanes compounds and cycloalkanes CO5. Students are able and understand the nature, structure, nomenclature and addition and oxidation reactions of alkanes and alkenes CO6. Students are able and understand the nature, structure, nomenclature and substitution reaction and elimination of haloalkane compounds CO7. Students are able and understand the aromaticity of aromatic compounds CO8. Students are able and understand the nature, structure, nomenclature and substitution reactions of

	<p>benzene compounds and their derivatives</p> <p>CO9. Students are able and understand the nature, structure, nomenclature and reaction of alkanol, alkoxy, thiol and diol compounds.</p> <p>CO10. Students are able and understand the nature, structure, nomenclature and reaction of the carbonyl group addition of alkanal compounds and alkanon</p> <p>CO11. Students are able and understand the nature, structure, nomenclature and reaction of alkanonic acid compounds</p> <p>CO12. Students are able and understand the nature, structure, nomenclature and reaction of compounds alkanonic acid derivatives</p> <p>CO13. Students are able and understand the nature, structure, nomenclature and reaction of nitrogen amine compounds</p>																											
Content:	<p>This lecture covers theory and practice which includes material 1). The basic concept of organic reactions is the structure of organic molecules, resonant and conjugations. 2). structure, nomenclature, nature, reaction and conformation of alkanes and cycloalkanes. 3). structure, nomenclature, properties and reactions of alkenes and alkyne compounds. 4). structure, nomenclature, properties, and reactions of halo alkane compounds 5). structure, nomenclature, aromaticity and reaction of benzene compounds and their derivatives. 6). structure, nomenclature, nature and reaction of alkanol, alkoxy, thiol and diol compounds. 7). structure, nomenclature, nature and reaction of alkanal and alkanon compounds. 8). structure, nomenclature, nature and reaction of alkanonic acid compounds. 9). structure, nomenclature, nature and reaction of alkanonic acid derivatives. 10). structure, nomenclature, properties and reaction of amine nitrogen compounds.</p>																											
Study/exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="5">1</td> <td rowspan="5">CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8, CO9, CO10, CO11, CO12, CO13</td> <td>Quiz</td> <td>Written test</td> <td>10%</td> </tr> <tr> <td>Assignment</td> <td>Assignment</td> <td>10%</td> </tr> <tr> <td>Mid term exam</td> <td>Written test</td> <td>20%</td> </tr> <tr> <td>Final exam</td> <td>Written test</td> <td>27%</td> </tr> <tr> <td>Laboratory work</td> <td>Pre-test Practice Report Post-test</td> <td>33%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8, CO9, CO10, CO11, CO12, CO13	Quiz	Written test	10%	Assignment	Assignment	10%	Mid term exam	Written test	20%	Final exam	Written test	27%	Laboratory work	Pre-test Practice Report Post-test	33%	Total				100%
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Total				100%																								
Forms of media:	Board, LCD Projector, handouts, PPT slides, laboratory kits, and stationaries																											
Reference:	<p>A. Allinger, et al., (1980), Organic Chemistry. New York: Worth Publisher Inc.</p> <p>B. Bruice, P.Y., (2007). Organic Chemistry, fifth edition,</p>																											

	Pearson Prentice Hall, C. McMurry, John., (2016), Organic Chemistry, ninth edition, Cengage Learning, D. Vogel, A.I, (1998). Vogel's Textbook of Practical Organic Chemistry, 5 th edition, Longman. E. Gilbert, John C. (2016). Experimental Organic Chemistry. sixth edition, Cengage Learning.
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PLO and CO mapping

CO	PLO									
	Attitude	Generic Skills		Knowledge				Specific Skills		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1							√			
CO2		√								
CO3							√			
CO4		√								
CO5							√			
CO6							√			
CO7		√								
CO8									√	
CO9									√	
CO10									√	
CO11									√	
CO12									√	
CO13									√	