

MODULE HANDBOOK

Modul Name	Mechanism of Organic Reaction
Module Level	Bachelor
Abbreviation, if applicable	3074212045
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	5 th / Third year
Modul coordinator(s)	Dr. Ismono, M.S.
Lecturer(s)	Dr. Ismono, M.S. Prof. Dr. Suyatno, M.Si. Prof. Dr. Tukiran, M.Si.
Language	Indonesian Language
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester	2 hours lectures (50 min / hour)
Workload	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 79.33 total hours per semester ~ 3.18 ECTS**
Credit point	2 CU x 1.59 = 3.18 ECTS
Requirement	Monofunction Organic Compounds and Polyfunction Organic Compound
Learning Outcomes	<p>CLO 1: Mastering the concept of reaction mechanism and able to analyze the products that may occur in a reaction and can determine the dominant product (major products),</p> <p>CLO 2: Able to apply the concept of reaction mechanism to explain reaction phenomena in daily life and industry</p> <p>CLO 3: Able to make the right decisions in order to solve problems based on the results of the analysis of information and data related to the reaction mechanism</p> <p>CLO 4: Having a responsible attitude and able to work with the team in completing tasks related to reaction mechanisms and able to communicate both orally and in writing in explaining the role of reaction mechanisms in predicting an organic chemical reaction product.</p>
Content	<p>Course materials discuss the understanding of intra molecular properties: electrical effect consist of inductive effect, mesomeric effect, electromeric effect as well as steric effect consist of steric hyndrance and streric assistance. Determination of organic reaction mechanism by non kinetic: product identification, intermediate testing, trapping inmediate, catalys effect, crossover experiment, isotop labeling, stereochemsstry study, limiting reaction, and detection of intremediate physical propeties. Mechanism of nucleophylic substitution: SN-1, SN-2, and SNi. Mechanism of elimination reaction: E-1 and E-2. Mechanism of free radical reaction: free radical substitution and free radical addition. Mechanism of addition reaction: Electrophylic</p>

	addition, nucleophilic addition, simultaneous addition (pericyclic reaction). Mechanism of aromatic electrophilic substitution: halogenation, alkylation, acylation, sulfonation, nitration, as well as aromatic nucleophilic substitution. Mechanism of condensation reaction: aldol condensation, Claisen condensation, Knoevenagel condensation, Cannizzaro reaction, and Robinson annelation.										
Study/exam achievements	Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio: <table border="1" data-bbox="608 555 1414 797"> <thead> <tr> <th>Assessment Components</th> <th>Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>20%</td> </tr> <tr> <td>Assignment</td> <td>30%</td> </tr> <tr> <td>Mid-semester test</td> <td>20%</td> </tr> <tr> <td>Final semester test</td> <td>30%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Final semester test	30%										
Media	Computer, LCD, White board										
Learning Methods	Lectures, discussion, assignment										
Literatur	<ol style="list-style-type: none"> 1. Ismono, Suyatno, Tukiran (2018). <i>Kimia Organik Lanjut: Mekanisme Reaksi Organik</i>. Surabaya: Unesa University Press 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure</i>, 6th edition, New York: John Wiley and Son, Inc. 3. Fessenden RJ and JS. Fessenden (1994) <i>Kimia Organik Jilid 1 dan 2</i>, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga. 4. Carey, F.A. (2000). <i>Organic Chemistry</i>. 4rd Ed. New York: McGraw-Hill Companies, Inc. 										
Notes:	<p>*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</p> <p>**1 CU = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/Hk/Ak/2019</p>										