

## MODULE HANDBOOK

Module Name	Polyfunction Organic Compound
Module level	Bachelor
Abbreviation, if applicable	
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	4 <sup>th</sup> /Second year
Module coordinator(s)	Dr. Ismono M.S.
Lecturer(s)	Prof. Dr. Suyatno, M.Si., Prof. Dr. Tukiran, M.Si, Dr. Ratih Saputri, M.Si
Language	Bahasa Indonesia
Classification within the curriculum	Compulsory
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 points:	2 CU = 2 x 1.59 = 3.18 ECTS
Prerequisites course(s):	Monofunctional Organic Chemistry
Targeted learning outcomes:	<p>CLO 1 Students can use information based on experience and cases in everyday life, other learning resources, and ICT to support understanding of the concept of polyfunctional compound with discussions, presentations, and collaboration to study about polyfunctional compounds.</p> <p>CLO 2 Students be able to apply the concept of polyfunctional organic compounds, such as alkadienes, polycyclic and heterocyclic aromatic hydrocarbons, carbohydrates, proteins, fats, and natural product in everyday life.</p> <p>CLO 3 Having a responsible and attitude by applying an understanding of learning material in the organic chemistry 2 (polyfunctional compound) about the properties of compounds in implementation in everyday life.</p> <p>CLO 4 Students be able to participate in society and have a commitment to developing self-potential in order to build character to achieve organizational goals.</p>

Content:	<ol style="list-style-type: none"> <li><b>Polyfunctional compounds:</b> Diene compounds, Dicarbonyl compounds, Dicarboxylic acid, Hydroxy carboxylic acid, Oxo carboxylic acid, The Diels-Alder reaction. Lactone formation.</li> <li><b>Polycyclic aromatic hydrocarbons and eterocyclic aromatic hydrocarbons:</b> definition, nomenclature, properties, reaction, example, preparation, and usage.</li> <li><b>Charbohydrates:</b> The structure and nomenclature of carbohydrates, monosaccharides, disaccharides, Polysaccharides, Carbohydrate reactions.</li> <li><b>Amino acids and protein:</b> amino acid, peptides, Protein and enzymes: the structure, types, chemical properties, and reaction.</li> <li><b>Lipids:</b> Structure and function of lipids, Hydrogenation of vegetable oil, Oil and grease lathering, saponification, phospholipids, teroids.</li> <li><b>Biological Organic Compounds:</b> bioactive compounds (secondary metabolites including terpenoids, steroids, flavonoids, and alkaloids) plants and their benefits in the pharmaceutical industry.</li> </ol>										
Study / exam achievements:	<p>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:</p> <table border="1" data-bbox="603 1111 1409 1350"> <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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Media:	Computer, LCD, White board, online media and related online learning resources.										
Learning Methods	Individuals' assignment, group assignment, discussion, presentation.										
Literature:	<ol style="list-style-type: none"> <li>Fessenden, Ralph J. and Fessenden, Joan S. 1995. Organic Chemistry, Fifth Edition.</li> <li>Solomons G., TW. 1996. <i>Organic Chemistry</i> sixth edition. New York: John Wiley &amp; Sons Inc.</li> <li>Article related to the topic, from website resources.</li> </ol>										

Notes:	*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.
	**1 CU = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019