

MODULE HANDBOOK

Modul Name	Molecular Structure Elucidation
Module Level	Bachelor of Chemistry
Abbreviation, if applicable	3074213058
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	6 th / Third Year
Modul coordinator(s)	Prof. Dr. Suyatno, M.Si. (C1), Prof. Dr. Tukiran, M.Si. (C1)
Lecturer(s)	Prof. Dr. Suyatno, M.Si. (C1), Prof. Dr. Tukiran, M.Si. (C1)
Language	Indonesian Language
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester	3 hours lectures (50 min / hour)
Workload	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 119 total hours per semester ~ 4.77 ECTS**
Credit point	3 CU == 3 x 1.59 = 4.77 ECTS
Prerequisite course(s)	Monofunction Organic Compounds and Polyfunction Organic Compound
Learning Outcomes	<p>General Competence (knowledge): Student can conclude sample preparation, techniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonance spectroscopy, mass spectroscopy, and elucidation of molecular structure of organic compounds based on spectroscopic data.</p> <p>Specific Competence: At the end of the lecture, students can conclude sample preparation, techniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonance spectroscopy, mass spectroscopy, and elucidation of molecular structure of organic compounds based on spectroscopic data.</p>
Content	Course materials discuss the understanding of sample preparation, techniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonance spectroscopy, mass spectroscopy, and elucidation of molecular structure of organic compounds based on spectroscopic data.

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="639 304 1442 544"> <thead> <tr> <th data-bbox="639 304 1038 349">Assessment Components</th> <th data-bbox="1038 304 1442 349">Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td data-bbox="639 349 1038 394">Participation</td> <td data-bbox="1038 349 1442 394">20%</td> </tr> <tr> <td data-bbox="639 394 1038 439">Assignment</td> <td data-bbox="1038 394 1442 439">30%</td> </tr> <tr> <td data-bbox="639 439 1038 483">Mid-semester test</td> <td data-bbox="1038 439 1442 483">20%</td> </tr> <tr> <td data-bbox="639 483 1038 544">Final semester test</td> <td data-bbox="1038 483 1442 544">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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Assignment	30%										
Mid-semester test	20%										
Final semester test	30%										
Media	Computer, LCD, White board										
Learning Methods	Lectures, discussion, problem solving, assignment										
Literature	<ol style="list-style-type: none"> 1. Cannel, R.J.P. (1998). <i>Natural Product Isolation</i>. New Jersey : Humana Press. 2. Silverstein, R.M., Webster, F.X. & Kiemle, D.J., (2005). <i>Spectrometric Identification of Organic Compounds</i>. 7th edition. New York: John Wiley & Sons, Inc. 3. Shriner, R.L., Hermann, C.K.F., Morrill, T.C., Curtin, D.Y. & Fuson, R.C., (2004). <i>The Systematic Identification of Organic Compounds</i>. 3rd edition. USA: John Wiley & Sons, Inc. 4. Creswell, C.J., Runquist, O.A. & Campbell, M.M. (1982). <i>Analisis Spektrum Senyawa Organik</i>. Kosasih Padmawinata dan Iwang Sudiro, Penerjemah. Bandung : ITB. 5. Suyatno (2016). <i>Penentuan Struktur Molekul Senyawa Organik dengan Metode Spektroskopi</i>. Surabaya: Unesa University Press 										
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>										

	6.
Note	<p>This course is divided into two parallel classes with the materials and ingredients but given the same test in the same time with same lecturers.</p> <p>*Total ECTS = $\{(\text{total hours workload} \times 50 \text{ min}) / 60 \text{ min}\} / 25 \text{ hours}$</p> <p>Each ECTS is equals with 25 hours</p>