**Module Handbook**

| | |
|---|---|
| Modul Name | **Molecular Stucture Elucidation** |
| Module Level | Bachelor of Chemistry |
| Abbreviation, if applicable | 4720103148 |
| Sub-heading, if applicable | - |
| Course included in the module, if applicable | - |
| Semester/term | 6th/ Sixth 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 hours lecture, 3 hours structured activities, 3 hours individual activities, 14 week a semester, and total 126 hours a semester~ 4.77 ECTS * |
| Credit point | 3 CU = = 3 x 1.59 = 4.77 ECTS |
| Requirement | Monofunctional Organic Chemistry and Polyfunctional Organic Chemistry |
| Learning Outcomes | **General Competence (knowledge)**:<br>Student can conclude sampel preparation, tecniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonace spectroscopy, mass spectroscopy, and elucidation of molecular sructure of organic compounds based on spectroscopic data.<br><br>**Spesific Competence** :<br>At the end of the lecture, students can conclude sampel preparation, tecniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonace spectroscopy, mass spectroscopy, and elucidation of molecular sructure of organic compounds based on spectroscopic data. |
| Content | Course materials discuss the understanding of sampel preparation, tecniques of extraction, separation, purification, and purification test of sample, Ultraviolet-visible spectroscopy, infrared spectroscopy, nuclear magnetic resonace spectroscopy, mass spectroscopy, and elucidation of molecular sructure of organic compounds based on spectroscopic data. |
| Study/exam achievements | Students are considered to be competent and pass if at least get 55<br><br>Final score is calculated as follows: 20% Participation + 30% Assignment + 20% Midle Exam + 30% Final Exam |

| | |
|---|---|
| | middle exam (UTS)& 30% final exam (UAS)<br><br>Tableindex of graduation<br>• 0 - 39,999 E,<br>• 40 - 54,999 D,<br>• 55 - 59,999 C,<br>• 60 - 64,999 C+,<br>• 65 - 69,999 B-,<br>• 70 - 74,999 B,<br>• 75 - 79,999 B+,<br>• 80 – 84,999 A-,<br>• 85 – 100, A |
| Forms of media | Computer, LCD, White board |
| Learning Methods | Lectures, discussion, problem solving, assignment |
| Literatur | 1. Cannel, R.J.P. (1998). *Natural Product Isolation*. New Jersey : Humana Press.<br>2. Silverstein, R.M., Webster, F.X. & Kiemle, D.J., (2005). *Spectrometric Identification of Organic Compounds*. 7th edition. New York: John Wiley & Sons, Inc.<br>3. Shriner, R.L., Hermann, C.K.F., Morril, T.C., Curtin, D.Y. & Fuson, R.C., (2004). *The Systematic Identification of Organic Compounds*. 3rd edition. USA: John Wiley & Sons, Inc.<br>4. Creswell, C.J., Runquist, O.A. & Campbell, M.M. (1982). *Analisis Spektrum Senyawa Organic*. Kosasih Padmawinata dan Iwang Sudiro, Penterjemah. Bandung : ITB.<br>5. Suyatno (2016). *Penentuan Struktur Molekul Senyawa Organik dengan Metode Spektroskopi*. Surabaya: Unesa University Press |
| Note | 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.<br>*Total ECTS = {(total hours workload x 50 min ) / 60 min } / 25 hours<br>**Each ECTS is equals with 25 hours** |