

### Module Descriptions

Module designation	Mono-function Organic Compound
Semester(s) in which the module is taught	3 <sup>rd</sup> Semester/Second Year
Person responsible for the module	Prof. Dr. Suyatno, M.Si.
Language	Bahasa Indonesia (Regular Class) Bahasa Inggris (Internasional Class)
Relation to curriculum	Compulsory course
Teaching methods	Project-Based Learning, 3 workhours per week (3 x 170 minutes per week)
Workload (incl. contact hours, self-study hours)	1 CU for a bachelor's degree equals 170 minutes (50 minutes face-to-face, 60 minutes structured, 60 minutes independent learning) per week × 14 weeks, excluding mid and end-term exams. = 39.67 work hours per semester = 1.587 ECTS.
Credit points	3 Credit Units (CU) = 4.77 ECTS
Required and recommended prerequisites for joining the module	Basic Chemistry
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. Applying scientific process skills, critical and creative thinking, and problem-solving to produce accurate conclusions based on case study identification, while applying teaching, research, and management skills in chemistry education.</li> <li>2. Demonstrating responsible attitudes by applying understanding of monofunctional organic compounds' properties in real-life applications.</li> <li>3. Analyzing concepts (knowledge) regarding the structural theory of organic compounds, including monofunctional compounds: alkanes, alkenes, alkynes; alkyl halides; alcohols, phenols, ethers; aldehydes, ketones; carboxylic acids; and amines.</li> <li>4. Integrating learning resources and ICT tools to support understanding of monofunctional organic compounds through case studies and collaboration.</li> </ol>
Content	This course covers the structure, properties, and reactions of monofunctional organic compounds, including alkanes, alkenes, alkynes, alkyl halides, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, and amines. Students actively engage in <b>case studies</b> to analyze functional group properties, reaction mechanisms, and conduct compound identification based on real-life scenarios or literature. Group discussions, Q&A, and reflection are employed to interpret case study results and literature data. Learning is supported by ICT-based tools for research, documentation, and presentation. Emphasis is placed on collaboration, reflection, and documentation of case study outcomes, enabling students to integrate theoretical knowledge with practical applications in chemistry education and daily life.

Examination forms	Essay and Oral Presentation
Study and examination requirements	<p><b>Study and Examination Requirements/Assessment:</b></p> <ol style="list-style-type: none"> <li>1. Individual assignments (case analysis reports)</li> <li>2. Group case studies and discussions</li> <li>3. Laboratory identification tasks</li> <li>4. Documentation and presentation of case study findings</li> </ol> <p><b>Assessment Recap (Case Study-Oriented):</b></p> <ol style="list-style-type: none"> <li>1. Participatory Activities/Case Study Analysis: 52,5%</li> <li>2. Project Result Assessment / Product Assessment: 25%</li> <li>3. Portfolio: 7,5%</li> <li>4. Test: 15%%</li> </ol> <p>Total: 100%</p>
Reading list	<ol style="list-style-type: none"> <li>1. McMurry, John. (2023). Organic Chemistry: A Tenth Edition. Houston, Texas: OpenStax. <a href="https://open.umn.edu/opentextbooks/textbooks/1498?utm_source=chatgpt.com">https://open.umn.edu/opentextbooks/textbooks/1498?utm_source=chatgpt.com</a></li> <li>2. Solomons, T. W. G., Fryhle, C. B., &amp; Snyder, S. A. (2021). Organic Chemistry (12th ed.). Wiley. Retrieved from <a href="https://newbooksnbooks.pk/products/organic-chemistry-12th-edition-by-t-w-graham-solomons">https://newbooksnbooks.pk/products/organic-chemistry-12th-edition-by-t-w-graham-solomons</a></li> <li>3. Klein, D. R. (2021). Essential Organic Chemistry (4th ed.). Wiley.</li> <li>4. Bruice, P. Y. (2021). Organic Chemistry (9th ed.). Pearson.</li> <li>5. Wardana, A. P., Abdjan, M. I., Aminah, N. S., Fahmi, M. Z., Siswanto, I., Kristanti, A. N., ... &amp; Takaya, Y. (2022). 3, 4, 3'-Tri-O-methylellagic acid as an anticancer agent: in vitro and in silico studies. RSC advances, 12(46), 29884-29891.</li> <li>6. Tukiran, T., Wardhana, A. P., Hidajati, N., &amp; Shimizu, K. (2018). Two phenolic compounds from chloroform fraction of Syzygium polycephalum MIQ. stem bark (Myrtaceae). Molekul, 13(1), 23-29.</li> </ol>