

Module Descriptions

Module designation	School Chemistry
Semester(s) in which the module is taught	4 th /Second Year
Person responsible for the module	Dr. Dian Novita, S.T., M.Pd.,
Language	Bahasa Indonesia (Regular Class) Bahasa Inggris (Internasional Class)
Relation to curriculum	Compulsory course
Teaching methods	Project-Based Learning, 2 workhours per week (2 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	2 Credit Units (CU) = 3,18 ECTS
Required and recommended prerequisites for joining the module	Basic Chemistry, Basic of Education
Module objectives/intended learning outcomes	<p>Upon successful completion of this module, students are expected to:</p> <ol style="list-style-type: none"> 1. Analyzing the fundamental principles of chemistry at junior high, senior high, and vocational high school levels in accordance with the applicable curriculum, covering both content depth and breadth. 2. Designing solutions to common and simple science and technology (IPTEKS) problems in chemistry through the application of knowledge about chemistry materials at junior high, senior high, and vocational high school levels in accordance with the curriculum, covering content depth and breadth as well as relevant technology. 3. Integrating learning resources and ICT-based learning media to understand chemistry concepts. 4. Evaluating and making decisions regarding the relationship between fundamental chemistry concepts and laboratory activities, research findings, and the presence of chemistry in daily life, accompanied by responsible professional attitudes in their field of expertise independently.

Content	Study of chemistry materials at junior high, senior high, and vocational high school levels in accordance with the applicable curriculum, with emphasis on both content depth and breadth. Students actively engage in project-based learning activities, including analyzing common misconceptions or conceptual errors in chemistry, reviewing scientific literature and educational journals, and proposing solutions to improve students' understanding of chemistry concepts. Learning is facilitated through discussions, Q&A sessions, group assignments, and ICT-based tools, with emphasis on collaboration, reflection, and documentation of project outcomes.
Examination forms	Essay and Oral Presentation
Study and examination requirements	<p>Study and Examination Requirements/Forms of Examination:</p> <ol style="list-style-type: none"> 1. Individual assignments (literature review, analysis) 2. Group assignments / project work (identifying misconceptions, proposing solutions) 3. Discussions and Q&A participation 4. Presentations and project documentation <p>Assessment Recap (Project-Based Learning):</p> <ol style="list-style-type: none"> 1. Participatory Activities: 27% 2. Project/Product Assessment: 53% 3. Practice/Performance: 20% <p>Total: 100%</p>
Reading list	<ol style="list-style-type: none"> 1. Rusmini. (2021). The Diagnosis of Misconception on The Concept of Acid-Base Theory in Prospective Teacher Students Used a Three-Tier Test. In <i>Journal of Physics: Conference Series</i> (Vol. 1899, No. 1, p. 012061). IOP Publishing. DOI: 10.1088/1742-6596/1899/1/012061 2. Novita, D., Suyono, & Suyatno. (2024). Dynamic equilibrium: Identification of initial conceptions and misconceptions on prospective teachers. In <i>AIP Conference Proceedings</i> (Vol. 3116, No. 1, p. 060044). AIP Publishing LLC. DOI: 10.1063/5.0210463 3. Brady, J. E., Jespersen, N. D., & Hyslop, A. (2014). <i>Chemistry</i>. USA: John Wiley & Sons Limited. 4. Duit, R., Treagust, D. F. (2003). <i>Conceptual Change: A Powerful Framework for Improving Science Teaching and Learning</i>. <i>International Journal of Science Education</i>, 25(6), 671–688. 5. Brady, J. E. (1990). <i>General Chemistry: Principles and Structure</i>. USA: John Wiley & Sons Limited. 6. Dingrando, L., Gregg, K. V., Hainen, N., & Wistrom, C. (1990). <i>Chemistry: Matter & Change, Student Edition (Glencoe Chemistry), 2nd Edition</i>. USA: John Wiley & Sons Limited.