



THE MODULE HANDBOOK

FACULTY OF BIOLOGY

Chemistry

Module code	MKS 1105IUP
Module level	1 st year of Undergraduate Program in Biology
Abbreviation, if applicable	-
Sub-heading, if applicable	-
Courses included in the module, if applicable	-
Semester/term	Odd
Module coordinator(s)	Dr. Roto
Lecture(s)	1. Dr. Roto 2. Dr. Eko Sri Kunarti
Language	English
Classification within the Curriculum	Compulsory Course
Teaching format/class hours per week during the semester	This course is taught in semester 1, has been planned to have 13 or 14 week-meetings per semester and 2 – 3 weeks of examination. Combine with teacher centered method, Student Centered Learning (SCL) method using Problem Based Learning (PBL) approach is applied during some week teachings, especially when teaching topics need elaboration of students' knowledge.
Workload	Estimated working hour: 10,5 hours/week.
Credit points	3-1 credits
Requirements	-
Learning goals/ competencies	<ol style="list-style-type: none">1. Explain the role of chemistry in everyday life.2. Understand the electron configuration so that students will understand the classification in the periodic system of elements, understand the chemical bonds occur between atoms and between molecules.3. Understand the concept of chemical calculations to determine the empirical formula and the molecular formula.4. Understand the solvent and its making, understand the degree of acidity, colligative and solubility of products.5. Understand the chemical kinetics, balance and energy to predict a reaction will work out or not.6. Understand the functional groups and nomenclature



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	<p>(alkanes, alkenes, alkyne, alcohol, ethers, aldehydes, ketones, carboxylic acids, and esters) isomer, the reaction of organic compounds, test organic compounds, aromatic compounds.</p> <p>7. Understand the energy and chemical changes, so it can control.</p>
Content	<p>This course learns about the atomic mass, isotope, the configuration of the electron, the nature of periodicity, equation, solvent and pH, stoichiometry, chemical kinetics, equilibrium reaction, the functional groups along with its name, isomers and reaction of organic compounds, test organic compounds, aromatic compounds, colligative properties and solubility product, energy and its changes.</p>
Study/ exam achievements	<ol style="list-style-type: none">1. Midterm: 35 %2. Final examination: 40%3. Individual assignment: 15%4. Presentation: 10 %
Forms of media	<p>White board, LCD and laptop</p>
Literature	<ol style="list-style-type: none">1. James E Brady & Fred Senese, CHEMISTRY Matter and its Change, 4th edition, John Wiley & Sons, Inc.2. James E Brady & Fred Senese, GENERAL CHEMISTRY Principle and Structure, 3rd edition, John Wiley & Sons, Inc.3. Martopawiro MA, dkk, Kimia Dasar: Konsep-konsep Inti, Jilid 1, edisi ketiga, (Terjemahan dari General Chemistry : The Essential Concept, Raymonnd Chang, 3rd edition, Mc Graw-Hill Companies, 2003), Airlangga, 2004.4. Middlecamp CH, Keller SW, Anderson KL, Bently AK, Cann MC, Ellis JP, Chemistry In Context, Sevent edition, Mc Graw-Hill International Edition, 2012.