



MINISTRY OF EDUCATION, CULTURE, RESEARCH,
AND TECHNOLOGY
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY

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MODULE HANDBOOK

Module Name:	Basic Chemistry II
Module level:	Bachelor
Course Code:	8420403122
Abbreviation, if applicable:	-
Course included in the module, if applicable:	-
Semester/term:	2 nd /First Year
Module coordinator(s):	Dr. Utiya Azizah, M.Pd.
Lecturer(s):	Dr. Utiya Azizah, M.Pd.; Dr. Sukarmin, M.Pd.; Dr. Nuniek Herdyastuti, M.Si.; Dian Novita, S.T., M.Pd.; Dr. Maria Monica Sianita B., M.Si.; Dr. Hj. Rinaringsih, M.Pd; Dr. Mitarlis, S.Pd., M.Si
Language:	Indonesian
Classification within the Curriculum:	Compulsory Course
Teaching format/class hours per week during the semester:	3 hours lecturers (50 min per hours)
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 unit:	3 CU = 3 x 1.59 = 4.77 ECTS
Prerequisite course(s):	-
Targeted learning outcomes:	<ol style="list-style-type: none">1. Students have the ability to utilize learning resources and ICT to support mastery of concepts and theories of all topics in Basic Chemistry 2.2. Students have the ability to make decision about the relationship between concepts on Basic Chemistry 2 and laboratory practice with Chemistry in daily life.3. Students have knowledge of the reaction rate, chemical equilibrium, redox and electrochemistry, colloidal system, nuclear chemistry and radioactivity, chemical elements, green chemistry and chemicals in daily life,4. Students have responsible attitude in doing laboratory practice honestly.
Content:	<ol style="list-style-type: none">1. Rate of reaction: Kinetics Law, Factors that affect the rate of reaction, activation energy, order of reaction, collision theory, and mechanism of reaction.2. Chemical equilibrium: Dynamic equilibrium, Equilibrium Law, Le Chatelier Principles, application of equilibrium concepts in industry.3. Redox and electrochemistry: concepts of redox,

	<p>equivalency of redox reaction, electrochemistry, DGL cell and Nernst equation, electrolysis and its quantitative aspect, corrosion.</p> <p>4. Colloid system: definition, dispersion system, classification of colloid based on their properties, colloid making and their usage in daily life.</p> <p>5. Nuclear chemistry: stability of nuclear, radioactive decay, nuclear reaction.</p> <p>6. Chemical elements: metals, non-metals, and transition elements, principles of metals processing.</p> <p>7. Green Chemistry: definition and characteristics, principles that support green chemistry.</p> <p>8. Chemistry in daily life: chemicals in household, chemicals in food, addictive agent and psychotropic drugs.</p>																																								
Study / exam achievements:	<p>The final grade (NA) is calculated based on the following ratio:</p> <table border="1"> <thead> <tr> <th>Assessment Components</th> <th>Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>20%</td> </tr> <tr> <td>Assignment</td> <td>30%</td> </tr> <tr> <td>Mid-semester test</td> <td>20%</td> </tr> <tr> <td>Final semester test</td> <td>30%</td> </tr> </tbody> </table> <p>Grade conversion of 0-100 scale into 0-4 scale is set as below:</p> <table border="1"> <thead> <tr> <th>Letter</th> <th>Number</th> <th>Grade Interval</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4,00</td> <td>$85 \leq A \leq 100$</td> </tr> <tr> <td>A-</td> <td>3,75</td> <td>$80 \leq A- < 85$</td> </tr> <tr> <td>B+</td> <td>3,50</td> <td>$75 \leq B+ < 80$</td> </tr> <tr> <td>B</td> <td>3,00</td> <td>$70 \leq B < 75$</td> </tr> <tr> <td>B-</td> <td>2,75</td> <td>$65 \leq B- < 70$</td> </tr> <tr> <td>C+</td> <td>2,50</td> <td>$60 \leq C+ < 65$</td> </tr> <tr> <td>C</td> <td>2,00</td> <td>$55 \leq C < 60$</td> </tr> <tr> <td>D</td> <td>1,00</td> <td>$40 \leq D < 55$</td> </tr> <tr> <td>E</td> <td>0,00</td> <td>$0 \leq E < 40$</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%	Letter	Number	Grade Interval	A	4,00	$85 \leq A \leq 100$	A-	3,75	$80 \leq A- < 85$	B+	3,50	$75 \leq B+ < 80$	B	3,00	$70 \leq B < 75$	B-	2,75	$65 \leq B- < 70$	C+	2,50	$60 \leq C+ < 65$	C	2,00	$55 \leq C < 60$	D	1,00	$40 \leq D < 55$	E	0,00	$0 \leq E < 40$
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Media:	Computer, LCD, White board																																								
Learning Methods	Individuals assignment, group assignment, discussion, presentation, and practicum																																								
Literature:	<ol style="list-style-type: none"> 1. Tim Kimia Dasar. 2017. <i>Kimia Dasar I</i>. Surabaya: Unesa University Press. 2. Brady and Humiston. 2004. <i>General Chemistry, Principles and Structures</i>. New York: John Willey and Sons. 3. Chang, Raymond. 2005. <i>General Chemistry The Essential Concepts Third Edition</i>. USA: McGraw Hill. 																																								

	<p>4. Achmad, Hiskia dan Tupamahu. 1990. <i>Penuntun Belajar Struktur Atom, Struktur Molekul, Sistem Periodik</i>. Bandung: ITB.</p> <p>5. Achmad, Hiskia dan Tupamahu. 1991. <i>Stoikiometri dan Energetika Kimia</i>, Bandung, PT Citra Aditya Bakti.</p> <p>6. Ahmad, Hiskia. 1990. <i>Kimia Larutan</i>. Bandung: Jurusan Kimia FMIPA ITB</p>
Notes:	<p>*1 credit unit or <i>sks</i> 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 credit unit or <i>sks</i> = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019</p>