

## MODULE HANDBOOK

Module Name	Basic Theory of Inorganic Chemistry
Module level	Bachelor
Abbreviation, if applicable	8420403119
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	4 <sup>th</sup> /Second Year
Module coordinator(s)	Prof. Dr. Sari Edi Cahyaningrum, M.Si.
Lecturer(s)	1. Prof. Sari Edi Cahyaningrum, M.Si. 2. Dr. Amaria, M.Si. 3. Dina Kartika Maharani, S.Si., M.Sc.
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 points:	3 CU = 3 x 1.59 = 4.77 ECTS
Prerequisites course(s):	-
Targeted learning outcomes:	<p>CLO 1 : Having the ability to take advantage of ICT-based learning resources and learning to domination of Inorganic Chemical theory and concept.</p> <p>CLO 2 : Able to knowledge about about periodicity of nature of element, acid base theory, basic reaction of chemistry, reaction and termodinamic of redox, molecule structure: covalent bond, Tonic bond and solid state</p> <p>CLO 3 : Make decision in hooking; correlating concepts of keberkalan the nature of element with theory of asam-basa, elementary reaction of chemistry, reaction and thermodynamic of redox, covalent bond, tonic bond and solid state</p> <p>CLO 4 : Demonstrate an attitude of responsibility for work in their field of expertise independently.</p>
Content:	<p><b>Characteristic of elemen:</b> nucleus effective charge; Shielding effect, energy ionization; affinity electron; electronegativity; covalen radii; and ionic radii;</p> <p><b>Chemical bond:</b> ionic bond, characteristic of ionic compound; ionic compound; mechanism of ionic compound; ratio of radii; lattice energy; solution of ionic compound; the</p>

	<p>Fajan role;            Covalen bond: valency Teory Bond; crystal field stabilization (CFSE); Orbital Molecule Theory; hydrogen bond and van der Waals;  <b>Reaction of chemistry:</b> basic theory of inorganic chemistry; acid base theory; the strength of acid base; reaction in water and non water.  <b>Oxidation-reduction theory:</b> half reaction; oxidation-reduction number; potential reduction; galvani cell; potential electrode; applied potential standart; reaction in water medium.  <b>Structure of solid :</b> ionic solid; grafite and diamond; crystale defect; band theory.</p>										
Study / exam achievements:	<p>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. 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>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Final semester test	30%										
Media:	Computer, LCD, White board										
Learning Methods	Individuals assignment, group assignment, discussion, presentation										
Literature:	<ol style="list-style-type: none"> <li>Huheey, J.E.; Keiter, E.A.; Keiter, R.L., 1990, <i>Inorganic Chemistry, Prinsiples of Structure and Reactivity</i>, Fourth Edition, Harper Collins College Publishers.</li> <li>Madan, R.D., 1997. <i>Modern Inorganic Chemistry</i> , S. Chand and Company LTD, New Delhi.</li> <li>Manku, G.S., 1980, <i>Theoretical Principles of Inorganik Chemistry</i>, Tata Mc Graw Hill Book Co of India. Arends, Richard I. (2004). <i>Guide to Field Experiences and Portofolio Development: to accompany ;learning to teach</i>. New York: McGraw-Hill Book Company.</li> <li>Sugiarto, Bambang. 2012. <i>Sistem Periodik Unsur</i>. Surabaya: Unesa University Press</li> <li>Sari Edi Cahyaningrum, 2018, <i>Teori Dasar Kimia Anorganik</i>, Unesa university Press</li> </ol>										
Notes:	*1 CU 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.
	**1 CU = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019