

MODULE HANDBOOK

Module Name	Basic Theory of Inorganic
Module level	Bachelor
Abbreviation, if applicable	3074213029
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	3 th /Second Year
Module coordinator(s)	Prof. Dr. Sari Edi Cahyaningrum, M.Si.
Lecturer(s)	Prof. Dr. Sari Edi C., M.Si.; Dr. Amaria, M.Si., and Dina Kartika M., M.Sc.
Language	Indonesian
Classification within the curriculum	Compulsory/ Elective
Teaching format/class hours per week during the semester:	3 hours lecturers (50 min per hours)
Workload:	Lecture: 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 x 1,59 = 4,77 ECTS
Prerequisites course(s):	-
Targeted learning outcomes:	CLO 1 Having the ability to take advantage of ICT-based learning resources and learning to domination of Inorganic Chemical theory and concept. CLO 2 Able to knowledge about about periodicity of nature of element, acid base theory, basic reaction of chemistry, reaction and thermodynamic of redox, molecule structure: covalent bond, ionic bond and solid state. CLO 3 Make decision in hooking; correlating concepts of periodic elements to the acid-base theory, elementary reaction of chemistry, reaction and thermodynamic of redox, covalent bond, tonic bond and solid state. CLO 4 Demonstrate an attitude of responsibility for work in their field of expertise independently.
Content:	Characteristic of element: nucleus effective charge; shielding effect, energy ionization; affinity electron; electronegativity; covalent radii; and ionic radii; Chemical bond: ionic bond, characteristic of ionic compound; ionic compound; mechanism of ionic compound;

	ratio of radii; lattice energy; solution of ionic compound; the Fajan role; Covalent bond: Valency Theory Bond; crystal field stabilization (CFSE); Orbital Molecule Theory; hydrogen bond and van der Waals; Reaction of chemistry: basic theory of inorganic chemistry; acid base theory; the strength of acid base; reaction in water and non water. Oxidation-reduction theory: half reaction; oxidation-reduction number; potential reduction; galvani cell; potential electrode; applied potential standart; reaction in water medium. Structure of solid : ionic solid; graphite and diamond; crystal defect; band theory.																																					
Attribute Soft skill	Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class and outdoor setting																																					
Study / exam achievements:	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: <table><tr><th>Assessment Components</th><th>Percentage of contribution</th></tr><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></table> Grade Conversion of 0-100 scale into 0-4 scale is set as below: <table><tr><th>Letter</th><th>Number</th><th>Grade interval</th></tr><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></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	$40 \leq D < 55$
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	E	0.00	$0 \leq E < 40$
Media:	Computer, LCD, White board		
Learning Methods	Lecture, individuals assignment, group assignment, discussion, presentation		
Literature:	1. Huheey, J.E. ; Keiter, E.A. ; Keiter, R.L., 1990, <i>Inorganic Chemistry, Principles of Structure and Reactivity</i>, Fourth Edition, Harper Collins College Publishers. 2. Madan, R.D., 1997. <i>Modern Inorganic Chemistry</i> , S. Chand and Company LTD, New Delhi. 3. Manku, G.S., 1980, <i>Theoretical Principles of Inorganic Chemistry</i>, Tata Mc Graw Hill Book Co of India.Arends, Richard I. (2004). <i>Guide to Field Experiences and Portfolio Development: to accompany ;learning to teach</i>. New York: McGraw-Hill Book Company. 4. Sugiarto, Bambang. 2012. <i>Sistem Periodik Unsur</i>. Surabaya: Unesa University Press. 5. Sari Edi Cahyaningrum, 2018, <i>Teori Dasar Kimia Anorganik</i>, Unesa university Press.		
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.		