



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY EDUCATION
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Bachelor of Education in Chemistry

MODULE HANDBOOK

Module name:	Inorganic Metal Chemistry
Module level, if applicable:	Undergraduate
Code:	KIM 6310
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	4
Module coordinator:	A.K. Prodjosantoso, Ph.D
Lecturer(s):	M. Pranjoto Utomo, M.Si. ; Prof. AK. Prodjosantoso, M.Sc.; Dra. Lis Permana Sari, M.Si.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	<ul style="list-style-type: none">• Lectures: 100 minutes lectures, 120 minutes structured activities and 120 minutes individual study per week• Laboratory Work: 170 minutes includes the laboratory work and it's report per week.
Workload:	Total workload of the activity is 136 hours per semester which consist of 100 minutes lectures, 120 minutes structured activities, 120 minutes individual study per week, and 170 minutes include laboratory work and it's report.
Credit points:	2SKS (3 ECTS) lectures, and 1SKS (1,64 ECTS) laboratory Work
Prerequisites course(s):	-
Course Outcome:	After taking this course, the students are expected to be able to: CO1 Students are able to show responsible attitude in managing and utilizing metal elements in daily life. CO2 Students are able to explain molecular orbital theory and band theory on metals; tightly packed geometry in solids, cavity types, crystal density; ionic compounds, polarization and covalence, structure and lattice of several simple ionic compounds; lattice energy based on the Born-Lande and Kapustinky equation and the Born-Harber cycle, the stability of ionic compounds related to the price of lattice energy; properties, uses and reactions of alkali, alkaline earth, aluminum metal groups; electronic configuration, magnetic and catalyst properties, as well as the atomic radius of the transition elements; the nature, usefulness of the lanthanide and actinoide elements; characteristics and uses, oxidation and reduction properties, inert pair lead and lead symptoms; reaction, cause and prevention of iron corrosion; and reactions to various batteries CO3 Students are able to apply theories and concepts of inorganic chemistry in overcoming the problems of daily

	life, especially in the management and utilization of metal elements.															
Content:	This course consists of Chemical Qualitative and Quantitative Analysis. Qualitative analysis is the identification of sample components with specific reagents. Quantitative analysis is the determination of quantities (grams, percent) by volumetric techniques. Lecture emphasizes the mastery of lecture material logically and scientifically and the ability to use scientific methods to solve problems faced by students.															
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1, CO2, CO3.</td> <td>Participation Assignment Mid-Term Exam Final Exam Lab Work</td> <td>Presentation / written test</td> <td>10% 20% 20% 20% 30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3.	Participation Assignment Mid-Term Exam Final Exam Lab Work	Presentation / written test	10% 20% 20% 20% 30%	Total				100%
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1	CO1, CO2, CO3.	Participation Assignment Mid-Term Exam Final Exam Lab Work	Presentation / written test	10% 20% 20% 20% 30%												
Total				100%												
Forms of media:	Handout, Board, LCD Projector, Laptop/Computer, Module, Tools and Chemicals for labwork															
References:	<ul style="list-style-type: none"> Kristian H. Sugiyarto, 2001, Common Textbook: Kimia Anorganik II, Jurusan Pendidikan Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Yogyakarta Shriver, D.F., Langford, C.H., Atkins, P.W., 1990, <i>Inorganic Chemistry</i>, Oxford Press, New York, USA Oxtoby, D.W., 2002, <i>Principles of Modern Chemistry</i>, Nelson Thomson Learning Inc, Toronto, Canada. 															

PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1						√
CO2			√			
CO3				√		