UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
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Module name:	Metal Innorganic Chemistry
Module level if applicable:	Undergraduate
Code:	KIM 6310
Sub-heading if applicable:	-
Classes if applicable:	-
Semester:	3rd
Module coordinator:	M. Pranjoto Utomo, M.Si
Lecturer(s):	1. M. Pranjoto Utomo, M.Si 2. Prof. AK. Prodjosantoso, Ph.D
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	• Lectures: 100 minutes lectures, 120 structured activities and 120 individual study per week • Laboratory work: 170 minutes includes the laboratory work and it's reporting per week
Workload:	Total workload of the activity is 136 hours per semester which consists of 100 minutes lectures, 120 structured activities and 120 individual studyand also 170 minutes laboratory work with it's reporting per week for 16 weeks
Credit points:	3 SKS (5 ECTS) with the details of 2 SKS (3 ECTS) lectures and 1 SKS (2 ECTS)
Prerequisites course(s):	General Chemistry, Non Metal Inorganic Chemistry
Course Outcomes	After taking this course, the students are expected to be able to: CO1 Show religiosity and humanity CO2 Adapt and responsible to finish the job CO3 Use any strategies and techniques of chemistry research to solve the problems and chemistry research. CO4 Adapt and responsible to finish the job CO5 Integrate mathematics and sciences concept to solve chemistry problems.
Content:	This course consists of: 1. Molecular orbital and band theories 2. Close pack geometry in solid, holes type and crystal density. 3. Ionic compound properties, polarization and covalence, structure and crystal lattice of several simple ionic compounds. 4. Lattice energy based on Born-Lande and Kapustinky equations, Born-Haber cycle, and the stability of ionic compound based on lattice energy. 5. Properties, the use and reactions of alkali and earth

<table>
<tr><td></td><td>alkali metals and aluminum.
6. Electronic configuration, magnetic and catalytic properties, the trend of atomic radius of transition elements.
7. Properties and the use, oxidation and reduction, inert pair effect of tin and lead.
8. Corrosion of iron.
9. Reactions of batteries.</td></tr>
<tr><td>Course Outcome:</td><td>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:
<table><tr><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr><tr><td>CO1,
CO2,
CO5,
CO7,
CO9</td><td>a. Mid-term Exam
b. Final Exam
c. Pretest, postest, lab. work, worksheet</td><td>Written test
Written test
Written test</td><td>33.5%
33.5%
33%</td></tr><tr><td colspan="2"></td><td>Total</td><td>100%</td></tr></table></td></tr>
<tr><td>Forms of media:</td><td>Textbooks, Whiteboard, LCD Projector, Laptop/Computer, Tools and Chemicals for labwork.</td></tr>
<tr><td>References:</td><td>1. Kristian H. Sugiyarto, (2001), Common Textbook: Kimia Anorganik II, Jurusan Pendidikan Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Yogyakarta
2. Shriver, D.F., Langford, C.H., Atkins, P.W., (1990), Inorganic Chemistry, Oxford Press, New York, USA
3. Oxtoby, D.W., (2002), Principles of Modern Chemistry, Nelson Thomson Learning Inc, Toronto, Canada.</td></tr>
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PLO and CO mapping

CO	PLO									
	Attitude	Generic Skill		Knowledge				Specific Skill		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1	√									
CO2		√								
CO3					√					
CO4							√			
CO5									√	