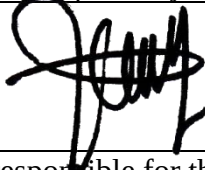




Faculty of Natural Sciences and Mathematics
Chemistry Department
Chemistry Education Study Program

Module name		Inorganic Chemistry I		
Module level, if applicable		1 st Year		
Code, if applicable		SPK – 210		
Semester(s) in which the module is taught		2 nd semester		
Person responsible for the module		M. Miqdam Musawwa, M.Sc.		
Lecturer		M. Miqdam Musawwa, M.Sc.		
Language		Indonesia		
Relation to curriculum		Compulsory		
Teaching methods	Class size	Forms of active participation	Workload 91 hours	
Class discussion	50-60	Discussion	Lecture: 100 (min) x 16 (meeting)	27 hours
			Assignment: 120 (min) x 16 (week)	32 hours
			Independent study: 120 (min) x 16 (week)	32 hours
ECTS Credit		3.25		
Credit points		2 SCU		
Requirements according to the examination regulations		Minimum attendance at lectures is 75% (according to UII regulation)		
Recommended prerequisites		N/A		
Related course		Inorganic chemistry lab work, Inorganic chemistry II		
Module objectives/intended learning outcomes		On successful completion of the course students should be able to: 1. Explain the theoretical concept of atomic/element/molecule/chemical compound structure 2. Explain the concept of the nature of atoms/ elements/ molecules/ chemical compounds 3. Conclude based on the identification and/or transformation of atoms/ elements/ molecules/ chemical compounds		
Content		• Introduction to inorganic chemistry courses		

	- Atomic theory and structure: introduction to atomic theory; Bohr models; wave mechanics; orbitals and quantum numbers; electron configuration. - Periodic system of elements: organization of the modern periodic table; the presence of the elements; stability of the element and its isotopes; element classification; properties and reactions of elements. - Periodic properties of elements: atomic radius; ionization energy; electron affinity; electronegativity; elemental biochemistry. - Covalent bonding: introduction to Molecular Orbital Theory (TOM); Molecular Orbitals (OM) of diatoms period 1 and 2; OM heteronuclear diatoms; Lewis's theory; partial bond order; Formal payload; VSEPR theory: Linear geometry, trigonal planar, tetrahedral, trigonal bipyramid, octahedral; Valence bond theory: hybridized orbitals; intermolecular force. - Metallic bonding: Introduction Metallic bonding; Bonding model; Metal structure; unit cell. Ionic bonding: Characteristics of ionic compounds; Ionic model and ion size: Ionic radii trend, melting point trend; Polarization and covalence; Ionic hydration; Ionic lattice: square, octahedral, tetrahedral; Ionic lattice: semiconductor and sphalerite structure; Crystal structure; Periodic trends in bonds: periodic 2 and 3; Periodic fluoride trends 2 and 3.		
Study and examination requirements and forms of examination	Final score (NA) is calculated as follows:		
	Intended learning outcomes	Weight (%)	Technique of assessment
	1	30	Written test: assignment, midterm
	2	30	Written test: assignment, midterm
	3	40	Written test: assignment, final examination
Media employed	Power point slide presentation, video, Google classroom		
Reading list	Canham, G.R., 2000, Descriptive Inorganic Chemistry, Second edition, W.H. Housecroft, 2007, Inorganic Chemistry, (3rd Ed.), Prentice Hall. Scerri, E.R., 2006. The Periodic Table: Its Story and Its Significance, USA: Oxford University Press.		

Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program