Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	**Elucidation of Inorganic Compounds (ESAno)**
Semester(s) in which the module is taught	5
Person responsible for the module	Adi Darmawan, Ssi, Msi, Ph.D
Language	Indonesian
Relation to curriculum	~~Compulsory~~/elective/~~specialisation~~
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	100 min
Credit points	2
Required and recommended prerequisites for joining the module	KAno3
Module objectives/intended learning outcomes	(S9) Demonstrate a responsible attitude towards work in their area of expertise independently (PP1) Mastering the theoretical concepts of the structure and properties of solids, how to identify and perform the separation and characterization (PP3) Mastering the basic principles of software for the analysis and identification of solid material (KU1) Able to apply logical, critical, systematic, and innovative thinking in the context of the elucidation of the structure of inorganic materials (KK3) Able to analyze several alternative solutions in identification, analysis, isolation, transformation, and synthesis of available chemicals and present analysis conclusions for appropriate decision making

Content	1. General description of the structure of inorganic substances 2. Various methods of identification and determination of the structure of inorganic substances 3. X-ray diffraction method part I; Bragg's Law 4. X-ray diffraction method part 2; Phase identification 5. X-ray diffraction method part 2; Determining mineral types online 6. Electron microscopy (SEM and TEM) 7. Scanning probe microscopy (AFM) 8. UV-visible spectroscopy 9. Infrared and Raman spectroscopy 10. Nuclear magnetic resonance, part 1; spectrum observation 11. Nuclear magnetic resonance, part 2; NMR of solids 12. Gas absorption analysis 13. Thermal analysis: TGA 14. Thermal analysis: DSC
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities -15% Project Results -20% Cognitive/Task Knowledge -10% Quiz -5% Mid-semester -25% Final exams -25%
Reading list	1. Atkins, Overton, Rouke, Weller, Amstrong, Hagerman, 2010, Shriver and Atkins' Inorganic Chemistry, Oxford University Press 2. Catherine E. Housecroft and Alan G. Sharpe, 2008, 3rd ed., "Inorganic Chemistry", Pearson Education Limited 3. Anthony R. West, 2014, 2nd ed, "Solid State Chemistry and Its Application", Wiley