



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	Inorganic materials chemistry (Mano)
Semester(s) in which the module is taught	4
Person responsible for the module	Pardoyo, S.Si., M.Si. Drs. Suhartana, M.Si.
Language	Indonesian
Relation to curriculum	Compulsory / elective / specialisation
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face : 1 x (2 x 50 min); Structured study: 1 x (2 x 60 min); Self study: 1 x (2 x 60 min)
Credit points	2
Required and recommended prerequisites for joining the module	KAno2

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Demonstrate an attitude of being responsible for work in their field of expertise independently. (S9) 2. Able to apply logical, critical, systematic, and innovative thinking in the development or implementation of science and technology that pays attention to and uses humanities values by their field of expertise. (KU1) 3. Able to demonstrate independent, quality, and measurable performance. (KU2) 4. Able to examine the implications of developing or implementing science and technology that pays attention to and applies humanities values according to their expertise based on scientific principles, procedures, and ethics to produce solutions, ideas, designs, or art criticism. (KU3) 5. Able to make decisions regularly in the context of solving problems in their area of expertise, based on the results of analysis of information and data. (KU5) 6. Able to solve science and technology problems in general and straightforward chemical fields such as identification, analysis, isolation, transformation, and synthesis of micro-molecules through the application of knowledge of structure, properties, kinetics, and energetics of molecules and chemical systems, with analysis and synthesis methods in specific chemical fields, as well as the application of relevant technologies. (KK2) 7. Able to analyze several alternative solutions in identification, analysis, isolation, transformation, and synthesis of available chemicals and present analysis conclusions for appropriate decision making. (KK3) 8. Mastering the theoretical concepts of structure, properties, changes, kinetics, and energetics of molecules and chemical systems, identification, separation, characterization, transformation, synthesis of micromolecular chemicals, and their application. (PP1)
<p>Content</p>	<ol style="list-style-type: none"> 1. Introduction: Lecture contract, Materials, and Grid defects 2. allotropy of carbon 3. allotropy of sulfur and phosphorus 4. Hydrides, metallic and nonmetallic carbides 5. Metal and nonmetal nitrides 6. Polyphosphasen 7. Metal and nonmetal oxides 8. Electrical conductivity of a material 9. Clay 10. Zeolite 11. Traditional Ceramics 12. Glass 13. New Ceramics 14. Metal

Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities 20% Project Results 30% Task 10% Quiz 10% Mid-semester 15% Final exams 15%
Reading list	<ol style="list-style-type: none"> 1. Grim, R.E., 1968 Clay Mineralogy., McGraw-Hill Book Company. 2. Kingery, W. D., 1960, Introduction to Ceramics Inorganic Polymer 3. Kowska, J.H., 1991, Carbon Active, Simon & Schuster International Graoup, England. 4. Marck, J.E., Allock, H.R., and West, R., 1992, Inorganic Polymer, Prentice Hall, New York. 5. Mumpton, F.A., Sen, L.B., 1976, Natural Zeolite, Pergamon Press.