

Module Descriptions

A **module** is a self-contained **learning unit** within a higher education program that includes thematically related courses and is assigned a **fixed number of credits**. It follows specific **learning objectives**, includes an **assessment component**, and contributes to achieving the qualifications of a degree program. In some countries, “modules” are also named “courses”.

Please provide a module description for each module. In addition to the compulsory and elective modules, this also includes credited internships and the final thesis.

Please summarize all module descriptions in one document (Module Handbook) and create a table of contents so that the modules can be found easily.

Module designation	Inorganic Structural Chemistry
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Prof. Dr. Hari Sutrisno, M.Si
Language	<i>Indonesian</i>
Relation to curriculum	<i>Compulsory / elective / specialisation</i>
Teaching methods	Lecture, Discussion, Demonstration, Experimentation, Independent Study, Project Work, Fieldwork
Workload (incl. contact hours, self-study hours)	Contact hours: 2 x 50 minutes per week Independent study and assignments: Estimated 3–4 hours/week Total ECTS equivalent: 2 credits (approx. 85–90 hours total workload)
Credit points	2 credits (SKS)
Required and recommended prerequisites for joining the module	None
Module objectives/intended learning outcomes	Inorganic Structurale Chemistry courses are courses for students of Master of Education in Chemistry with descriptions including: chemical structure description, symmetry and molecular groups, chemical bonds and lattice energy, molecular structures 1 (compounds of the main group elements) and 2 (transition metal compounds), crystal gratings, symmetry and groups crystals, X-ray diffraction instruments and determination of simple crystal structures. This course aims to enable students to understand the structure and grid contained in molecular compounds 1 and 2.

Content	<p>Subjects include:</p> <ul style="list-style-type: none"> • Description of chemical structure • Theory of repulsion of valence electron pairs • Symmetry and molecular groups • Chemical bonds and lattice energy • Atom size size • Symmetry and crystal groups • Molecular structure 1: compounds of the main group elements • Molecular structure 2: transition metal compounds • Structure of nonmetal elements • X-ray diffractometer • Determination of simple crystal structure 																
Examination forms	Midterm Test, Final Exam, Assignments, Project-Based Learning and Presentations, Case Studies																
Study and examination requirements	<p>Minimum attendance: 75% of lectures and full participation in fieldwork</p> <p>Evaluation Components:</p> <table> <thead> <tr> <th>Assessment Type</th><th>Weight (%)</th></tr> </thead> <tbody> <tr> <td>Attendance</td><td>5</td></tr> <tr> <td>Assignments</td><td>10</td></tr> <tr> <td>Midterm Exam</td><td>15</td></tr> <tr> <td>Final Exam</td><td>20</td></tr> <tr> <td>Case Studies</td><td>15</td></tr> <tr> <td>Team-based Projects</td><td>35</td></tr> <tr> <td>Total</td><td>100</td></tr> </tbody> </table>	Assessment Type	Weight (%)	Attendance	5	Assignments	10	Midterm Exam	15	Final Exam	20	Case Studies	15	Team-based Projects	35	Total	100
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Reading list	<ol style="list-style-type: none"> 1. Hari Sutrisno, Dyah Purwaningsing, A.K. Prodjosantosa. (2023). <i>Fundamental Kristalokimia</i>. UNY Press 2. Muller, U., (2006). <i>Inorganic Structural Chemistry, second edition</i>. West Sussex: John Wiley & Sons Ltd 3. Huheey, J. E., Keiter, E. A. & Keiter, R. L. (1993). <i>Inorganic Chemistry: Principle of Structure and Reactivity</i>. New York : Harper Collins College Publisher. 4. Li, W. K., Zhou, G. D. & Wai Mak, T. C. (2008). <i>Advanced Structural Inorganic Chemistry</i>. New York: Oxford Science Publication 5. Miessler, G. L. & Tarr, D. A. (2009). <i>Inorganic Chemistry, third edition</i>. New Delhi: Pearson Education 6. West, A. R. (1989). <i>Solid State Chemistry and Its Applications</i>. Singapore: John Wiley & Sons Ltd. S2. Journal Inorganic Chemistry 																

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