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.

Module designation	*Non-Metal Inorganic Chemistry*
Semester(s) in which the module is taught	2
Person responsible for the module	*Isti Yunita, Ph.D*
Language	*Indonesia*
Relation to curriculum	*Compulsory ~~/ elective / specialisation~~*
Teaching methods	*Lecture, discussion, lab work, project*
Workload (incl. contact hours, self-study hours)	*(Estimated) Total workload:* *100 minutes/week for class learning* *170 minutes/week for lab work*
Credit points	*3 sks (4.8 ECTS)*
Required and recommended prerequisites for joining the module	*General Chemistry*
Module objectives/intended learning outcomes	*On successful completion of the course students should be able to:* *1. Explain the theoretical concepts of non-metallic elements in inorganic chemistry.* *2. Describe the structure and bonding of molecules containing non-metal elements.* *3. Identify and explain chemical properties, periodicity, and reactivity trends of non-metals.* *4. Analyze preparation methods and reactions of selected non-metal compounds.* *5. Explain the environmental and industrial significance of non-metallic inorganic compounds.*

<table>
<tr><td>Content</td><td>
- Introduction to Non-Metal Inorganic Chemistry
- Periodicity and general properties of non-metals
- Hydrogen and its compounds
- Group 14: Carbon and silicon chemistry
- Group 15: Nitrogen and phosphorus chemistry
- Group 16: Oxygen and sulfur chemistry
- Group 17: Halogen chemistry
- Noble gases and their compounds
- Acid-base properties and redox behavior of non-metals
- Environmental and industrial aspects of non-metal compounds
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<tr><td>Examination forms</td><td>Essay, project report and presentation, written tests</td></tr>
<tr><td>Study and examination requirements</td><td>Minimum attendance at lectures is 75% and lab work is 100%
Final score (NA) is calculated as follows:
<table>
<tr><th>Learning Outcome</th><th>Weight (%)</th><th>Technique of Assesment</th></tr>
<tr><td>1</td><td>5</td><td>Participation</td></tr>
<tr><td>1</td><td>5</td><td>Quizz</td></tr>
<tr><td>2</td><td>10</td><td>Group Discussion</td></tr>
<tr><td>2-3</td><td>30</td><td>Lab work</td></tr>
<tr><td>3</td><td>20</td><td>Project</td></tr>
<tr><td>4</td><td>15</td><td>Mid-term Written Test</td></tr>
<tr><td>5</td><td>15</td><td>Final Exam Written Test</td></tr>
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<tr><td>Reading list</td><td>
- Cotton, F. A., Wilkinson, G., & Gaus, P. L. (1995). Basic Inorganic Chemistry (3rd ed.). John Wiley & Sons.
- Housecroft, C. E., & Sharpe, A. G. (2012). Inorganic Chemistry (4th ed.). Pearson.
- Greenwood, N. N., & Earnshaw, A. (2012). Chemistry of the Elements (2nd ed.). Butterworth-Heinemann.
- Wulfsberg, G. (2000). Inorganic Chemistry. University Science Books.
- Atkins, P., Overton, T., Rourke, J., Weller, M., & Armstrong, F. (2010). Shriver and Atkins' Inorganic Chemistry (5th ed.). Oxford University Press.
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Prepared by	Verified by:	Authorized by:
Isti Yunita, Ph.D		Program Study Coordinator