



**Diponegoro University**  
**Faculty of Science and Mathematics**  
**Undergraduate Program Of Chemistry**

Module designation	<b>Chemistry of Elements (KU)</b>
Semester(s) in which the module is taught	1
Person responsible for the module	Sriatun, M.Si Drs. Suhartana, M.Si Pardoyo, M.Si
Language	Indonesian
Relation to curriculum	Compulsory/ <del>elective</del> / <del>specialisation</del>
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face : 1 x (3 x 50 min); Structured study: 1 x (3 x 60 min); Self study: 1 x (3 x 60 min)
Credit points	3
Required and recommended prerequisites for joining the module	No requirement
Module objectives/intended learning outcomes	<ol style="list-style-type: none"><li>1. Demonstrate an attitude of being responsible for work in their field of expertise independently. (S9)</li><li>2. Mastering the theoretical concepts of structure, properties, changes, kinetics, and energetics of molecules and chemical systems, identification, separation, characterization, transformation, synthesis of macromolecular chemicals, and their application. (PP1)</li><li>3. Able to produce appropriate conclusions based on the results of identification, analysis, isolation, transformation, and synthesis of chemicals that have been carried out. (KK1)</li><li>4. Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology that pays attention to and uses humanities values following their field of expertise. (KU1)</li></ol>

Content	<ol style="list-style-type: none"> <li>1. Elements of the Alkali and Alkaline Earth Group: Periodic Table, Elements of Hydrogen.</li> <li>2. Elements of Alkali and Alkaline Earth Groups: Alkali Group, Alkaline Earth Group.</li> <li>3. Block p elements: Group 13.</li> <li>4. Block p elements: Group 14.</li> <li>5. Block p elements: Group 15.</li> <li>6. Block p elements: Group 16.</li> <li>7. Block p elements: Group 17 and 18.</li> <li>8. Transitional Elements (Block d): Abundance and presence and general Traits.</li> <li>9. Transitional Elements (Block d): Various minerals, How to isolate elements from minerals.</li> <li>10. Transition Elements (d Block): Complex compounds, Complexions.</li> <li>11. Lanthanide Group elements: Abundance and presence, General properties, ionization energy, size effect, contraction of lanthanides, Isolation methods of lanthanide elements, Precipitation, recrystallization, thermal reactions, complex formation, solvent extraction, valence change and ion exchange, Chemistry lanthanide.</li> <li>12. Actinide Group elements: Abundance and presence, General properties, radius, oxidation state, lanthanide contraction, Method of preparation, Actinide chemistry</li> </ol>
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	