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**MODULE HANDBOOK**

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| Module name | **Basic Chemistry 1** |
| Module level, if applicable | Bachelor |
| Code, if applicable | MKK-1101 |
| Courses, if applicable | Basic Chemistry 1 |
| Semester(s) in which the module is taught | Fall (Odd) |
| Person responsible for the module | Department of Chemistry |
| Lecturer(s) | Team |
| Language | Bahasa Indonesia and English |
| Relation to curriculum | Bachelor degree, Compulsory course in the first year (1st semester) |
| Teaching methods | 150 minutes of lectures and 180 minutes of structured activities per week. |
| Workload (incl. contact hours, self-study hours) | 1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week.<br>2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week.<br>3. Private study: 3 x 60 = 180 minutes (3 hours) per week. |
| Credit points | 3 credit points |
| Requirements according to the examination regulations | Students have taken Calculus I course (MKK-1101) and have an examination card where the course is stated on. |
| Required and recommended prerequisites for joining the module | No prerequisite is needed. |

<table>
<tr><td>Learning outcomes and their corresponding PLOs</td><td>After completing this course, the students should be able to:<br>CO1. Understand the concept of atom structure and molecule, reaction, and energy changes, and the fundamental theory of chemical bond.<br><br><table><tr><td colspan="2">PLO</td><td>CO1</td></tr><tr><td rowspan="5">Program Learning Outcome (PLO)</td><td>PLO1</td><td></td></tr><tr><td>PLO2</td><td>√</td></tr><tr><td>PLO3</td><td></td></tr><tr><td>PLO4</td><td></td></tr><tr><td>PLO5</td><td>√</td></tr></table></td></tr>
<tr><td>Content</td><td>• Introduction, Molecules, Ions and Chemical Formulas, Chemical Reactions;<br>• Reactions in solution, Energy changes in chemical reactions;<br>• Atomic Structure, Periodic Table;<br>• Ionic Bond vs. Covalent bonding, Molecular Geometry and Covalent Bonding Model</td></tr>
<tr><td>Study and examination requirements and examination forms</td><td>In class group discussion, Quiz, Mid-terms examination and Final examination</td></tr>
<tr><td>Media employed</td><td>Whiteboard, LCD Projector, Laptop/Computer</td></tr>
<tr><td>Assessments and evaluation</td><td>The final mark will be weighted as follows:<br><table><tr><td>No</td><td>Assessment methods</td><td>Weight (percentage)</td></tr><tr><td>1</td><td>Final Examination</td><td>40%</td></tr><tr><td>2</td><td>Mid-Term Examination</td><td>30%</td></tr><tr><td>3</td><td>Class Activities: Quiz, Homework, etc.</td><td>30%</td></tr></table><br>The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.</td></tr>
<tr><td>Reading list</td><td>1. James E. Brady, Frederick A. Senese, 2009, Chemistry: The Study of Matter and Its Changes 5th edition.<br>2. Raymond Chang, Kenneth A. Goldsby, 2012, Chemistry, 11th Edition<br>3. Ralph H. Petrucci, William S. Harwood, F. Geoffrey Herring, 2002, General Chemistry: Principles and Modern Applications, 8th ed.</td></tr>
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