



<b>Course ID:</b> HOA126	<b>Course name: GENERAL CHEMISTRY II</b>		
<b>Cycle: FIRST</b>	<b>Year: FIRST</b>	<b>Semester: II</b>	<b>ECTS credits: 6</b>
<b>Course status: MANDATORY</b>		<b>Total course hours: 75</b> Lectures: 45 Laboratory: 30	
<b>Teaching participants:</b>	<b>Teachers and associates with expertise in the field to which the subject belongs</b>		
<b>Prerequisite for enrollment:</b>	-		
<b>Course aims:</b>	<ol style="list-style-type: none"><li>1. Acquiring the necessary knowledge to understand the facts about the chemical bonding of atoms, the structure and properties of molecules.</li><li>2. Application of acquired knowledge in understanding and interpreting molecular theories, qualitative and quantitative relationships between substances, analysis of chemical reactions in different media and categorization of conditions and principles of their development.</li></ol>		
<b>Thematic course units:</b>	<ol style="list-style-type: none"><li>1. Chemical reactions. Types of chemical reactions.</li><li>2. Chemical bonds and structure of the molecule.</li><li>3. Basic types of chemical bonds. Ionic bond. Metal bond.</li><li>4. Covalent bond. Lewis structures. Formal charge of molecules</li><li>5. VSEPR Theory. Geometric structure of molecules.</li><li>6. Valence bond theory. Hybridization of orbitals.</li><li>7. Molecular orbitals. Molecular orbitals theory.</li><li>8. Dipole molecules. Intermolecular forces. Hydrogen bond.</li><li>9. Reactions in aqueous solutions.</li><li>10. Chemical thermodynamics. Internal energy, work and heat. Enthalpy.</li><li>11. Chemical kinetics. Chemical reaction rate. Chemical equilibrium.</li><li>12. Equilibrium in homogeneous and heterogeneous systems,</li><li>13. Electrolytes. Acids and bases.</li><li>14. Equilibrium in electrolyte solutions. Dissociation constant.</li><li>15. Electrochemical reactions. Electrode potential. Electrolysis.</li></ol>		
<b>Learning outcomes:</b>	<i>Knowledge:</i> <ol style="list-style-type: none"><li>1. Explain the structural characteristics of elements and their compounds.</li><li>2. Distinguish the main types of chemical reactions and their characteristics.</li><li>3. Explain the basic features of ionic and covalent bonds as well as intramolecular interactions.</li><li>4. Describe the most important characteristics of different states of matter and determine the qualitative and quantitative relationships between matter and energy exchange in chemical processes.</li><li>5. To explain the meaning of dynamic equilibrium and consider the equilibria in chemical reactions.</li></ol>		

	<p><i>Skills:</i></p> <ol style="list-style-type: none"> <li>To explain the connection between the structural characteristics of the elements and their compounds with the nature of the chemical bond between atoms and the interactions of molecules.</li> <li>To describe the chemical equilibrium and explain the conditions under which it occurs.</li> <li>Independently to perform the experiments provided by the program and handle the chemicals in a safe way</li> </ol> <p><i>Competencies:</i></p> <ol style="list-style-type: none"> <li>Evaluate and discuss the obtained experimental results by connecting them with theoretical knowledge from the program</li> <li>Independently analyze chemical processes and changes in various fields of chemistry that are studied in the continuation of Study.</li> </ol>																																													
<b>Teaching methodology:</b>	Method of oral presentation, method of conversation, method of working with text, practical laboratory exercises																																													
<b>Assessment methods and grading system<sup>1</sup>:</b>	<table border="1"> <thead> <tr> <th colspan="3">Grading criteria</th> </tr> <tr> <th>Criteria</th> <th>Maximal score</th> <th>Required score</th> </tr> </thead> <tbody> <tr> <td>1. Class attendance</td> <td>5</td> <td>3</td> </tr> <tr> <td>2. Class activities</td> <td>15</td> <td>8</td> </tr> <tr> <td>3. Test</td> <td>40</td> <td>22</td> </tr> <tr> <td>4. Final exam</td> <td>40</td> <td>22</td> </tr> <tr> <td>Total</td> <td>100</td> <td>55</td> </tr> <tr> <th colspan="3">Scores and grading</th> </tr> <tr> <th>Score</th> <th>Grade (B&amp;H)</th> <th>Grade (ECTS)</th> </tr> <tr> <td>&lt; 55</td> <td>5</td> <td>F, FX</td> </tr> <tr> <td>55–64</td> <td>6</td> <td>E</td> </tr> <tr> <td>65–74</td> <td>7</td> <td>D</td> </tr> <tr> <td>75–84</td> <td>8</td> <td>C</td> </tr> <tr> <td>85–94</td> <td>9</td> <td>B</td> </tr> <tr> <td>95–100</td> <td>10</td> <td>A</td> </tr> </tbody> </table>	Grading criteria			Criteria	Maximal score	Required score	1. Class attendance	5	3	2. Class activities	15	8	3. Test	40	22	4. Final exam	40	22	Total	100	55	Scores and grading			Score	Grade (B&H)	Grade (ECTS)	< 55	5	F, FX	55–64	6	E	65–74	7	D	75–84	8	C	85–94	9	B	95–100	10	A
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<b>Literature<sup>2</sup>:</b>	<p>Mandatory literature:</p> <ol style="list-style-type: none"> <li>Filipović I, Lipanović S. Opća i anorganska kemija I dio. Zagreb: Školska knjiga; 1995.</li> </ol> <p>Supplementary literature:</p> <ol style="list-style-type: none"> <li>Kahrović E. Anorganska hemija. Sarajevo: Bemust, Univerzitetska knjiga; 2005.</li> <li>Chang R. Chemistry. 6th ed. Boston: WCB/McGraw-Hill; 1998.</li> </ol>																																													

<sup>1</sup> The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

<sup>2</sup> The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton