

Study Programme: All programs at the Faculty of Technology Novi Sad
Course Unit Title: General and Inorganic Chemistry
Course Unit Code: ZO103
Name of Lecturer(s): Full Professor Marijana M. Ačanski, Full Professor Sanja Podunavac Kuzmanovic
Type and Level of Studies: Bachelor Academic Degree
Course Status (compulsory/elective): Compulsory
Semester (winter/summer): Winter
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 9
Prerequisites: None
<p>Course Aims:</p> <p>Acquisition of basic scientific and academic abilities and skills in the field of general and inorganic chemistry. Understanding the basic chemical laws necessary to monitor technological processes.</p>
<p>Learning Outcomes:</p> <p>Mastering the chemical account and general laboratory technique. Understanding the basic types inorganic chemical compounds important for the chemical, pharmaceutical and food industries. Knowledge of the properties of chemical elements and their compounds of significance for the chemical technology. Understanding specific inorganic chemical reactions.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Structure of the atom and periodic table of elements. Chemical bondings (ionic and covalent) and molecule structures. Hybridization and resonance. Intermolecular bondings. Types of inorganic compounds. Oxidation number (reactions with and without changes in oxidation number). Solutions (non-electrolytes and electrolytes), solution composition, diluted solutions. Energy effects of chemical reactions. Chemical kinetics. Chemical balance (homogeneous and heterogeneous). Balances in aqueous solutions of electrolytes, dissociation of water, pH. Buffers. Hydrolysis. Solubility. Complex compounds (types, properties of bonds in complexes, ligand field theory, stability). Characteristics of chemical elements and their compounds important for chemical technology.</p> <p><i>Practice</i></p> <p>Solving problems based on chemical equations, solutions, chemical kinetics, chemical equilibrium, pH, buffer and solubility products. Laboratory exercises from the above-mentioned fields.</p>
<p>Required Reading:</p> <ol style="list-style-type: none"> 1. N. Perišić-Janjić: General Chemistry, Nauka, Novi Sad, 2000 2. S. Arsenijević: General and Inorganic Chemistry, Partenon, Belgrade, 2001 3. I. Filipovic, S. Lipanović: General and Inorganic Chemistry, Školska knjiga, Zagreb, 1986 4. S. Podunavac-Kuzmanović, L. Jevrić, S. Kovačević, Praktikum iz opšte i neorganske hemije, Feljton, Novi Sad, 2017 5. Marijana Ačanski, Workbook in General and Inorganic Chemistry, Faculty of Technology, Novi Sad, 2007 6. S. Lomić, S. Radosavljević, Problems in Chemistry, Faculty of Technology, Novi Sad, 1996 7. S. Kevrešan, J. Kandrač, J. Nikolić, Basics of Problems in Chemistry, M & N, Novi Sad, 2000 8. G. L. Miessler, P. J. Fischer, D. A. Tarr, Inorganic Chemistry, 5th edition, Pearson education, 2013. 9. D. Ebbing, S. D. Gammon, General Chemistry, 10th Edition, Brooks/Cole, 2013.

Weekly Contact Hours:	Lectures: 4		Practical work: 3
Teaching Methods: Interactive lectures using video presentations, solving problems in chemistry - independent work in smaller groups, consultations.			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Active class participation	5	Written exam	30
Practical work	25	Test I and test II	20 + 20
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			