SYLLABUS

1. Course title:

GENERAL AND INORGANIC CHEMISTRY

2. Code:

3. Cycle of study:

1

4. ECTS credits:

8

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

Student does not have to pass any subject before this

7. Class restrictions:

No restrictions

8. Duration / semester:

1 1

9. Weekly contact hours:

9.1. Lectures: 4

9.2. Seminars: 1

9.3. Laboratory/Practice classes: 2

10. Faculty:

Faculty of Technology

11. Department/study program:

Environmental Protection Engineering

12. Lecturer:

prof.dr sc. Amira Cipurković, dr.sc. Zorica Hod

13. Lecturer's e-mail:

amira.cipurkovic@untz.ba; zorica.hodzic@unt

14. Web site:

www.tf.untz.ba

15. Course aims:

- introducing the basics knowledge and experience to students to better understand certain areas of general and inorganic chemistry
- connect theoretical knowledge and practical application
- learn to perform experiments (individually or through team work) in order to solve problems and tasks
- improve student communication skills in written and verbal form and continuous work throughout the semester

16. Learning outcomes:

After succesfully finalizing the learning process, it is expected from student to be able to:
- carry out all calculations related to experiment organization: preparation of the equipment needed for experimental work, selection and preparation of appropriate concentration of solutions, adjustment of all parameters related to specific synthesis
- perform the experiment of synthesis certain chemical compounds, isolate them, examine and analyze properties, calculate the quantities of reactants and product yields, discuss and evaluate obtained results (graphic and mathematical explanation), etc.

17. Course content:

Natural sciences and chemistry. Atomic structure of matter. Chemical bonds. Molecular orbital and molecular geometry. Stehiometry and stoichiometric calculations. Disperse systems. Types of chemical reactions and stoichiometry of the solution. Chemistry kinetics. The chemical equilibrium. Balance in homogeneous systems. Colligative properties of solution. Equilibrium in aqueous electrolytic solutions. Ionization of water and ion product. Hydrogen-ion concentration and pH value of acid, base and salt solutions. Importance of inorganic chemistry. Nomenclature of inorganic compounds. General properties of elements s- and p-blocks (atomic and ion radius, ionization energy, standard redox potentials, stability of oxidation states, and so on). Precious gases. Hydrogen. Elements 17.-13. Groups of Periodic Table of Elements (PSE). Elements 1 and 2 Groups. General properties of d- and f-block elements. Elements 3-12. groups. Complex compounds.

18. Learning methods:

- Lectures
- Laboratory practice
- Consultation

The attendance of students in lectures (P) and lab. exercises are mandatory. During the semester, students will assign a certain number of assignments and responsibilities to the teacher / assistant, which they must complete and be ready for the next exercises, as well as to submit a report on the exercises.

19. Assessment methods:

Written and/or oral methods are used to verify the knowledge acquired on the subject.
• As part of the pre-requisites, students are required to undertake the planned experimental exercises and pass two colloquia. For a continuous activity on exercises throughout the semester, the student can achieve max. 10 points.
• Written Methods: After half of the semester, students write first test that covers the topic of lectures and exercises. Each correct answer is scored with the appropriate number of points, ie, student can achieve a maximum of 20 points. After completing the semester, the students write a second test that covers the topics covered by the lectures and exercises from the second part of the semester. Each correct answer is scored with a certain number of points, ie, the student can score up to 20 points. Both tests work all the students on the subject at the same time, and the same conditions under which the student takes the exam.
After the end of semester, students work final exam which contains theoretical questions and maximum number of points is 50.
• The final exam is written/oral. The final exam can work students who have completed at least 50% of the maximum points, ie 10 points on each test. On an oral exam, the student answers the questions from the curriculum program of lectures and exercises. Oral exam can be passed if the student answers all questions. The maximum number of points on oral exam is 50.
• Checks on all forms of knowledge are recognized as a cumulative test if the result is positive after each individual check and is at least 50% of the total of the anticipated and / or required knowledge and skills.
• In order for a student to pass the subject, they must have a minimum of 54 cumulative points, of which at least 25 points are on the final exam.
By fulfilling all of their requirements, students can thus earn a maximum of 100 points.
The final grade is formed as a sum of all points earned in-class, the test and the final exam.
The following is the grading scale, showing the points, numerical grade, descriptive grade and letter grade:

0-53	5 (five) fail F
54-63	6 (six) satisfactory E
64-74	7 (seven) good D
74-83	8 (eight) very good C
84-93	9 (nine) excellent B
94-100	10 (ten) outstanding A

20. Assessment components:

Rating is based on the accumulated points from pre-exam activities and tests, according to quality of aquired knowledge and skills. Student can achieve maximum of 100 points, according to following scale:

Student obligations	Points
colloquia and activities	10
tests	40
final exam	50

21. Required reading list:

1. Filipović, I., Lipanović, S. (1995.): Opća i anorganska kemija, I i II dio, Zagreb, Školska knjiga.
2. Cipurković, A., Hodžić, Z., Tanjić, I. (2010.): Preparativna neorganska hemija, Tuzla, Bosanska riječ.

22. Web sources:

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

-