SYLLABUS

1. Course title:

Management of air, water and soil

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

No prerequisites

7. Class restrictions:

8. Duration / semester:

1 6

9. Weekly contact hours:

9.1. Lectures:	2
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	1

10. Faculty:

Faculty of Technology

11. Department/study program:

Chemical Engineering and Technologies / Chemistry and Engineering of Materials

12. Lecturer:

Franc Andrejaš, associate professor

13. Lecturer's e-mail:

franc.andrejas@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

To introduce students with negative processes affecting the components of the environment - air, water and soil and point them to the application of acquired knowledge in determining air, water and soil protection measures in accordance with legal regulations and strategic guidelines.

16. Learning outcomes:

1. ti recognize the causes and sources of pollution of air, water and soil
2. to define measurable indicators for assessing the state of the resources in the environment
3. to provide for the possibility of protection of air, water and soil by taking preventive concrete measures to prevent or reduce negative impacts
4. to distinguish measures for prevention and remediation of pollution
5. to integrate legislation in the area of protection and preservation of natural environmental constituents in eco-engineering planning.

17. Course content:

Sources of air pollution. Sampling of particles, gases and smoke in indoor and outdoor areas. Measurement of polluting substances in the atmosphere and analysis of data. Water resources - management and protection. Preparation of drinking water (physico-chemical procedures, control of microorganisms). Waste water treatment and sludge disposal (physico-chemical and biological procedures, process design). Industrial waste water (pre-treatment and separation of waste streams). Processes in soil formation, fertility and soil erosion. Production, physiological and ecological function of soil. Utilization of land (recreation, water supply, sewage, waste disposal, industrial and residential buildings). Remediation of soil and groundwater. Case studies in the field of water, air and soil protection. Legal regulations in the field of air, water and soil protection.

18. Learning methods:

lectures (through interactive lectures to introduce students with negative processes affecting air, water and soil, and applying knowledge acquired in determining air, water and soil protection measures in accordance with legal processes.)
laboratory exercises (group solving of given problems, visits to an institution working in the area of protection of one of the constituents of the environment).
seminar (group solving of given problems)
consultations- through consultations, students can deepen the knowledge acquired at lectures.

19. Assessment methods:

Throughout the course, students are required to regularly attend lectures and exercises. Students' attendance records will be regularly kept. On a special form, the subject teacher will continuously monitor the presence of each student. During the semester, the student can be absent with a maximum of three lectures and three exercises, being obliged to bring proof of justification of absence (medical certificate, etc.). In the case of more unexcused absences, the student loses the right to the signature of the teacher.
• TESTS - Two tests throughout the semester, for the oral part of the exam. Each test for the oral part of the exam, consists of 20 short theoretical questions related to the previously processed material and carries 15 points (for a passing grade, one should achieve a minimum of 8 points). Tests are usually conducted after every six weeks of lectures, whereby the subject teacher will announce them to the students at least two weeks before each test.
• LABORATORY EXERCISES: the student is obliged to do all laboratory exercises, and based on activity in exercises can achieve a maximum of 25 points (for a passing grade should achieve a minimum of 12 points).
• FINAL PART OF THE EXAM - Students who have collected the required number of points by all criteria (54 points), have the option of additional (verbally or in writing exam) for a higher final grade. The maximum number of points that can be obtained on the final exam is 30. The minimum number of points, which must be reached on the final exam is 18.
All the students who did not meet the conditions in one of the tests or who are not satisfied with the grade, but who have completed all other obligations of the course (have the signature of the subject teacher in the index) take the final exam. The student can not get a final grade if he has not passed all the tests.
• SEMINAR WORK OF STUDENTS: student has the opportunity to do one seminar work. Successfully prepared and verbaly performed seminar work is evaluated with a maximum of 10 points (minimum 6 points), which are added to the total number of points achieved on other bases, in the formation of the final grade.

20. Assessment components:

The final grade is based on the total number of points obtained through prerequisites and the final exam, according to the quality of the acquired knowledge and skills. It has a maximum of 100 points, according to the following scale:
Regularity of teaching attendance (lectures + exercises): 5 points
Activity in laboratory exercises: 25 points
Tests (theory): 30 points
Seminar paper: 10 points
Final exam: 30 points

21. Required reading list:

Selimbašić V, Cipurković A, Crnkić A (2014). Hemija i zaštita okoline. OFF-SET, Tuzla.
Selimbašić V, Stuhli V (2012). Procesi obrade otpadnih voda. OFF-SET, Tuzla.

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: