SYLLABUS

1. Course title:

Industry and environment

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 / Chemical Engineering and Technology

12. Lecturer:

Vahida Selimbašić, full professor

13. Lecturer's e-mail:

vahida.selimbasic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

The aim is to introduce students to the basic processes that take place in the atmosphere, hydrosphere and lithosphere and explain basic physical, physico-chemical and biological processes, as well as the selection of process equipment for the treatment of waste streams from the industry, for the purpose of environmental protection.

16. Learning outcomes:

After passing the exam, the student is expected to know:
1. to explain the process of circulating matter into the atmosphere, the hydrosphere and the lithosphere
2. atmospheric pollution sources
3. sources of pollution of hydrosphere
4. methods and process equipment for preventing emissions from industrial sources into the environment
5. waste management methods and procedures.

17. Course content:

Industrial development and environment. Principles of sustainable development. The importance of choosing technology, raw materials and energy when planning production. Natural ecosystems. Industrial sources of pollution of the atmosphere, hydrosphere and lithosphere. The properties of the atmosphere. Air pollution and global climate change. Methods and devices for preventing the emission of harmful substances into the atmosphere.
Circular water flow in nature. Pollution of natural waters. Self-purification and eutrophication of water systems. Physical, chemical and biological indicators of pollution. Origin of wastewaters. Methods and procedures for purification of industrial waste waters. Mechanical, physico-chemical and biological treatment methods. Regulations for discharge into natural waters.
Examples of technological solutions for wastewater treatment in the chemical industry.
Solid waste. Types, sources, properties. Waste management. Methods for disposal of waste. Recycling of waste. Waste disposal sites, substrate preparation, controlled disposal, landfill remediation.

18. Learning methods:

Lectures (through interactive lectures to introduce students to basic processes that take place in the atmosphere, hydrosphere and lithosphere, and the selection of process equipment for the treatment of waste streams from the industry for the purpose of environmental protection).
Auditorial exercises (group solving of given problem, solving examples from areas explained in lectures).
Consultations - through consultations, students can deepen the knowledge gained in the 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, and two tests for the written part of the exam, ie a total of 4 tests. Each test for the oral part of the exam consists of 20 short theoretical questions related to the previously processed lectures and carries 15 points (for a passing grade, one should achieve a minimum of 8 points). Each test for the written part of the exam consists of four calculation assignments related to the previously processed lectures 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.
• 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 5 points (minimum 3 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 pre-requisites and the final exam, according to the quality of the acquired knowledge and skills. It contains a maximum of 100 points, according to the following scale:
Regularity of teaching attendance (lectures + exercises): 5 points
Tests (theory): 30 points
Tests (calculation assignments): 30 points
Seminar paper: 5 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.
Đuković J, Bojanić V (2000). Aerozagađenje. Institut zaštite i ekologije, Banja Luka.

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: