SYLLABUS

1. Course title:

ENVIRONMENTAL PROTECTION

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

No prerequisites

7. Class restrictions:

No 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:

Food Quality and Safety

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:

Introduce students with the influence of different sources of pollution on the environment and human health, with the basics of environmental management and legislation, and to explain to them the basic processes and operations, which are applied to the processing of waste streams (harmful gases, waste water, solid and hazardous waste) in order to protect environment.

16. Learning outcomes:

1. identify environmental issues (water, soil, air) and apply theoretical knowledge in solving problems
2. apply the methodology of chemical engineering and environmental engineering in solving problems created in the environment and industry
3. select simple processes and process equipment for processing pollutants in waste streams
4. assess how the designed process affects the global environment

17. Course content:

Significance of environmental protection. Application of chemical-engineering methodology in environmental protection. A historical review of pollution and environmental damage. Legislation on environmental protection.
The composition of the atmosphere, the origin and spread of pollution, ozone depletion, climate change, air quality measurement.
Noise and noise protection. Electricity and pollution reduction measures. Ionized radiation, radioactive waste and its disposal.
Classification of water environment and water sampling for analysis, supply with drinking water, drinking water source contamination and treatment. Classification, composition, analysis and drainage of wastewaters, the impact of untreated wastewaters on receivers.
Processes and Degrees of Wastewater Treatment, Process Equipment Selection.
Formation of the soil (physical, chemical and biological processes), land use, problems of excessive use of pesticides.
Solid waste materials, classification by generation, incineration of waste, composting of waste, sanitary landfill.

18. Learning methods:

lectures (through interactive lectures to introduce students with the influence of different sources of pollution on the environment and human health, with the basics of governance and legislation, the basic processes and operations applied in the processing of waste streams)
auditorial exercises (group solving of given problems, visits to industries)
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 (3014). Hemija i zaštita okoline. OFF-SET, Tuzla.
Selimbašić V, Stuhli V (2012). Obrada 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: