

## SYLLABUS

**1. Course title:**

INDUSTRIAL ECOLOGY

**2. Code:****3. Cycle of study:**

1

**4. ECTS credits:**

5

**5. Type of course:** Mandatory  Elective**6. Prerequisites:**

No prerequisites

**7. Class restrictions:****8. Duration / semester:**

1

5

**9. Weekly contact hours:**

9.1. Lectures:

3

9.2. Seminars:

0

9.3. Laboratory/Practice classes:

0

**10. Faculty:**

Faculty of Technology

**11. Department/study program:**

Chemistry Engineering and Technologies / Ecological Engineering

**12. Lecturer:**

Abdel Dozić, Ph.D. assistant professor

**13. Lecturer's e-mail:**

abdel.dozic@untz.ba

**14. Web site:**

www.tf.untz.ba

**15. Course aims:**

The main purpose of this course is to enable students to master new knowledge in the field of protection and improvement of the environment. To introduce students with the most important elements of the environment, such as air, water, soil and their interdependence. It is very important for students to gain a conviction on the current state of environmental pollution, not just locally but globally. Also, importance is given to getting to know the causes of environmental pollution, the consequences of such a condition on man, and the plant and animal world in general.

**16. Learning outcomes:**

To know basic concepts in industrial ecology. To understand based impacts of industrial plants on the environment, Understand the term life cycle analysis (LCA) of products and services, To know how to reduce the impact of industry on the environment, To be able to critically read and interpret scientific publications in the field of environmental protection and industrial ecology, To be able to draft operational plans for environmental protection, To understand the advantages and disadvantages of traditional ways of monitoring the environment, To understand the idea of sustainable development.

**17. Course content:**

Introduction to industrial ecology. Definition. Historical review. Industrial and natural ecosystems. Objectives of industrial ecology. Material flows. LCA analysis (life cycle analysis). Ecological / Environmental indicators. Water resources, water supply, wastewater, water use. Fossil fuels. Waste. Recycling, use, prevention of waste generation. Renewable energy sources. Environmental impact studies. Corporate industrial ecology - environmental protection as a strategy of the company.

**18. Learning methods:**

Getting to know the broad spectrum of industrial activities that have an impact on the environment. The development of critical thinking and learning about the possible ways of reducing the harmful effects to the environment.

**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.
- 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 verbally 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 contains a maximum of 100 points, according to the following scale:

Regularity of teaching attendance (lectures + exercises): 5 points

Tests (theory): 40 points

Seminar paper: 15 points

Final exam: 40 points

**21. Required reading list:**

Tuhtar D (1979). Zagađivanje zraka i vode, Svjetlost Sarajevo.

Stojanović O (1984). Štetne i opasne materije, Rad Beograd.

Đuković J (1990). Zaštita životne okoline, Svjetlost Sarajevo.

Hemry J i sar, (1996). Environmental Sciece an Sciece and

**22. Web sources:****23. Applicable starting from the academic year:**

2015/2016

**24. Adopted in the Faculty/Academy session:**