SYLLABUS

1. Course title:

ENVIRONMENTAL ASPECTS OF ENERGY MANAGEMENT

2. Code:

3. Cycle of study:

1

4. ECTS credits:

7

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

No prerequisites

7. Class restrictions:

No class restrictions

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	2

10. Faculty:

Faculty of Technology

11. Department/study program:

Chemical Engineering and Technologies / Ecological Engineering

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 define and clarify: renewable and non-renewable energy sources, technology for energy conversion, pollution and other environmental aspects of energy, energy conservation and energy efficiency.

16. Learning outcomes:

After completing the obligations, as envisaged in the subject syllabus, successful students are expected to:
- understand the notion, and the concept of extraction and conversion of energy, its transport and consumption;
- understand the role of scientific, socioeconomic, environmental and political factors in the energy management system;
- design, use and modify procedures for energy management;

17. Course content:

Introduction to the subject. Presentation of the study area;
Introduction to energy concepts and themes: man-environment - energy balance;
Energy as the determinant of the development of human society. Energy in Transport, Housing and Commercial Sector. Consumption and environmental impact;
Traditional energy sources. Energy from fossil resources. Energy reserves. Thermal power plants and thermal power plants. Impact on the environment;
Hydropower. Sustainable exploitation of water resources. Impact on the environment;
Nuclear energy and related topics: radioactive waste, challenges and opportunities;
Recapitulation. TEST
Energy and Sustainability: the concept of renewable and alternative sources of energy, technologies for their conversion;
Solar energy. Wind energy. Geothermal energy;
Biomass energy (1); Biomass energy (2); Waste as an energy resource; Cogeneration and trigeneration. Combined systems; Energy saving and energy efficiency - strategic approach to energy development; Recapitulation. TEST

18. Learning methods:

Lectures, laboratory exercises, field teaching, group and individual consultations. Lectures will be multimedia supported when appropriate, with the expected active participation of students in the discussion. The exercises will be conducted in interactive form, through the practical execution of laboratory experiments. Visits to relevant economic and other organizations will demonstrate the link between theory and practice. Consultations will facilitate and deepen understanding of the subject matter.

19. Assessment methods:

Throughout the course, students are required to attend lectures and exercises on a regular basis, which will be monitored by the subject teacher and associates and, on special forms, keep records. During the semester, the student can be absent from 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. Each test consists of a maximum of 20 simple theoretical questions related to the previously processed material and carries 20 points (for a passing grade, one should achieve a minimum of 11 points). Tests are usually conducted after every six weeks of classes, 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 13 points).

• FINAL PART OF THE EXAM - Students who have collected the minimum required number of points for the pass grade (54 points) by all criteria, have the right on deserved grade or to use 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 both tests.

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 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): 40 points
Final Exam: 30 points

21. Required reading list:

1. Đonlagić M. (2005) Energija i okolina, Printcom, Tuzla
2. Đonlagić, M., Đonlagić, N., Sadadinović, J., Andrejaš, F. (2004) Alternativni izvori energije, Univerzitet u Tuzli, Tuzla.
3. Omanović M (2000) Energija i ekologija..., TRAEQS, Zenica

22. Web sources:

http://www.eea.europa.eu/publications#c14=&c12=&c7=en&c9=all&c11=5&b_start=0&c5=energy

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: