SYLLABUS

1. Course title:

Green engineering

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

7. Class restrictions:

No 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/Ecological Engineering

12. Lecturer:

Elvis Ahmetović, Full Professor

13. Lecturer's e-mail:

elvis.ahmetovic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

Course aims are to:
- understand basic knowledge about green engineering and the impact of waste streams from the process on the environment,
- understand the role of process engineer in the process from the aspect of environmental protection,
- understand, critically analyze and discuss problems from the aspect of pollution prevention in process, reuse, regeneration and recirculation of materials.

16. Learning outcomes:

After completing the course and the teaching obligations students will be able to:
- use and analyze the available literature in order to obtain the necessary information,
- understand the concept of pollution prevention, reuse, regeneration and recirculation of materials in the process,
- solve selected problems from the aspect of reducing energy consumption/fresh water and the waste water, generation,
- understand the product life cycle concept,
- present the results in written and verbal forms.

17. Course content:

Presentation of syllabus. Introduction to green engineering. Global environmental problems. The impact of waste streams of the technological process on the environment. Risk concepts and risk assessment in manufacturing processes. Pollution prevention concepts and terminology. The role and responsibilities of process engineer in environmental protection. Evaluating environmental performance during process synthesis. Unit operations and pollution prevention. Flow-sheet analysis for pollution prevention. Product life cycle concept.

18. Learning methods:

Lectures, laboratory (computer) exercises, seminars, consultations.

19. Assessment methods:

For checking the acquired knowledge in the course, written and/or oral examinations are used. Written examinations consist of knowledge examinations during the semester (Test I) and after the end of the semester (Test II), and an oral examination which consists of a short talk and discussion. Tests (I and II) consist of theoretical questions and calculation problems. During the semester students will be assigned with seminar works that should be completed and submitted by the end of the semester. Assessment is performed through the oral presentation of seminar work. Students should have a positive result after each assessment with at least 50% of the required knowledge. Student must achieve a minimum of 54 cumulative points in order to pass the course.
Students who intend to access the exam should be registered by the teaching assistant at latest two days before the exam. Registration includes A4 notebook on which it is necessary to write the name of the student, department, index number and academic year.

20. Assessment components:

Students obligations:	Weight (%):
Test I	40
Seminar work	20
Test II-Final exam	40

21. Required reading list:

1. Allen, D. T., Shonnard, D. R. (2002) Green Engineering: Environmentally conscious design of chemical processes. New York: Prentice Hall PTR.

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: