SYLLABUS

1. Course title:

CLEANER PRODUCTION AND CLEANER TECHNOLOGIES

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

◉ Mandatory   ○ Elective

6. Prerequisites:

NO

7. Class restrictions:

8. Duration / semester:

1   6

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:

Chemical Engineering and Technologies/Chemistry and Engineering of Materials, Ecological Engineering

12. Lecturer:

Zoran Iličković, PhD., Associate professor

13. Lecturer's e-mail:

zoran.ilickovic@untz.ba

14. Web site:

15. Course aims:

The aim of course is to give students necessary knowledge about the principles and methods of implementation of cleaner production measures in the process industry as well as the application of the so-called cleaner technologies in order to reduce the negative impact of processes and products of process industry on the environment.

16. Learning outcomes:

By successful completion of this course, students will identify the principles and techniques of application of cleaner production measures and analyze and distinguish the possibilities of application of cleaner technologies in the process industry, so that they will be able to independently or in a team to work on solving the problems related to this field.

17. Course content:

Through the course Cleaner production and cleaner technologies, students are introduced to the following curricula: Global environmental problems and reasons for cleaner production (CP) and cleaner technologies (CT), Basic pollutants in process industries, Pollution prevention techniques and methods, The term BAT and BREF, examples for individual industries, History and basic terminology of CP and CT, methodology for evaluating the possibility of applying CP measures in industrial plants (MOED), implementation of CP and CT by sectors, cleaner technologies in practice; renewable fuels, application of membrane processes in the process industry, supercritical fluids, fuel cells, biodegradable polymer materials.

18. Learning methods:

Auditorial lectures with the use of multimedia resources (power point presentation) favoring the active participation and discussion of students.

Practical work on the preparation and public presentation of individual and group seminar papers

19. Assessment methods:

Knowledge and skills are evaluated continuously throughout the semester through:

Partial exam-tests -T1 and T2, and final exam.

Students are required to approach all forms of knowledge checking during the semester.

Partial exam I, includes knowledge checking after the first 7 units adopted through lectures.

Partial exam II includes the knowledge gained through lectures (teaching units 8 to 15).

Partial exams I and II are in written form and consist of 10 questions. The student can earn maximal 20 points on each partial exam.

As a part of the prerequisites, the student can conduct seminar work and can achieve a maximum of 5 points.

Regular attendance at lectures is evaluated with a maximum of 5 points.

At the pre-exam activities, the student can maximally earn 50 points.

The final exam covers the entire course. At the final exam, the student can earn a maximum of 50 points.

20. Assessment components:

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and the completion of the final exam, with a maximum of 100 points and is determined according to the following scale:

54-62 = 6
63-72 = 7
73-82 = 8
83-92 = 9
93-100 = 10

21. Required reading list:

1. Iličković Z. – Lecture materials
2. Hocking M.B., (2006) Handbook of chemical technology and pollution control, AC-press
3. Mulholland K.H. (2006) Indentfication of cleaner production improvement opportunities, AIChE

22. Web sources:

hhttp://www.unep.fr/scp/cp/publications/ (10.04.2015)

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session: