SYLLABUS

1. Course title:

Adsorbents and inhibitors on a bio-basis

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

No prerequisites

7. Class restrictions:

8. Duration / semester:

1 7

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/ Chemistry and Engineering of Materials

12. Lecturer:

Amra Odobašić, associate professor

13. Lecturer's e-mail:

amra.odobasic@untz.ba

14. Web site:

www.tf.untz.ba

15. Course aims:

Within this course, students get to know a group of materials that are characterized by a variety of characteristics on which their application is based for a very specific purposes, especially in the protection of the environment and pharmacy. Students will get to know the most important properties of these materials, the most important representatives and methods for their preparation as well as the preconditions for their successful use and application.

16. Learning outcomes:

Introduction to the properties, origin and biosorbents and bioinhibitors applications. The significance of these materials is growing daily and multidisciplinary scientific and research approaches are required in their study due to the variety of applications. Students will distinguish between biosorbent and bioinhibitor characteristics compared to other types of materials from the point of view of physical-chemical and biological properties. Students will describe biosorbenate and bioinhibitor preparation procedures. The students will analyze certain types of biosorbenes and bioinhibitors from the point of view of use. The students will define biosorption processes.

17. Course content:

Introduction. Identification of bio-based sorbents. Characterization of biosorbents and bioinhibitors - physical chemical and biological. Methods of biosorbents analysis. Influence of pH, temperature and contact time on biosorption. Methods of analysis and preparation of bioinhibitors. Water contamination with heavy metals and other inorganic compounds. Reactions of organic compounds with metals in water. Suspended colloidal particles in water. Binding Mechanisms and mobility at phase boundary. Examples of biosorbents applications in the process of removing toxic substances from natural and wastewater. Examples of bioinhibitor use.

18. Learning methods:

Lectures (ex cathedra)
Seminars
Consultations as needed

19. Assessment methods:

Students are obliged to attend lectures, from which may be absent in up to three (3) times during the semester. Students are also obliged to undertake the preparation of seminar papers. On a special form, the subject teacher will continuously monitor the presence of each student.
Through specific seminar assignments, students will show the level of accepted knowledge in lectures and computational exercises.
After each test or exam, the results will be published on the bulletin board within 10 days.

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:
1. Attendance at lectures: 5 points
2. Seminar: During the course, the students will have 1 seminar work that can carry a maximum of 25 points and 1 partial test that carries 25 points
3. Final exam: 45 points

21. Required reading list:

1.A. Odobašić, Nastavni tekstovi , 2016.
2. Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen, Jack E. Lemons, Biomaterials Science: An introduction to Materials in Medicine, Elsevier Academic Press, San Diego, 2004.

22. Web sources:

23. Applicable starting from the academic year:

2015/2016

24. Adopted in the Faculty/Academy session: