

SYLLABUS

1. Course title:

Radiochemistry

2. Code:**3. Cycle of study:****4. ECTS credits:****5. Type of course:** Mandatory Elective**6. Prerequisites:**

No prerequisites

7. Class restrictions:

No class restrictions

8. Duration / semester:**9. Weekly contact hours:**

9.1. Lectures:

9.2. Seminars:

9.3. Laboratory/Practice classes:

10. Faculty:

Faculty of Technology

11. Department/study program:

Environmental Protection Engineering

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

14. Web site:

www.tf.untz.ba

15. Course aims:

To provide students with knowledge about chemical changes caused by ionizing radiation through the environment, as well as practical application of the effects caused, particularly through technology, medicine and environmental protection.

16. Learning outcomes:

The student is able to understand the processes that high-energy (ionizing) radiation cause in matter, their mechanisms and consequences. He is also qualified to adopt, determine and explain the meanings of basic concepts, to connect and explain acquired knowledge, and to apply the principles of ionizing radiation protection. He is also ready to evaluate and select the opportunities for practical application of acquired knowledge.

17. Course content:

1. Discovery of radioactivity (radiation, atomic nuclei, isotopes)
2. Types and characteristics of radioactive radiation
3. Law of radioactive decomposition
4. The ionizing radiation interaction with the matter
5. Basics of radiation-chemical transformations
6. Radiation sources in radiation chemistry
7. Dosimetry of radiation
8. Natural radioactivity
9. Artificial radioactivity
10. Detection of radioactive radiation
11. Uranus
12. Radiation-chemical effects in the living organism
13. Radiation technologies, sterilization, radiation-chemical synthesis
14. Use of radioisotopes in medicine, industry, science and environmental protection
15. Protection from radiation.

18. Learning methods:

Lectures
Theoretical exercises
Seminar papers

19. Assessment methods:

The student is obliged during the course to attend the partial and final exam.
Each student has his own seminar work.
The course teacher enters the grade in the index to students who have passed the partial and final exam from the theoretical part of the course with the minimum number of points and the extraordinary seminar work, after the completion of all the obligations on the course (signature of the course teacher in the index).
All students who have completed all the obligations on the course (have the signature of the course teacher in the index) are accessing the final exam.
The results will be published in the notice board of the faculty within 2-8 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 contains a maximum of 100 points, according to the following scale:

1. Presence at lectures and exercises: 5 points
2. I partial test: 30 points (minimum number for passing is 13)
3. Final exam: 45 points
4. Seminar paper: 20 points

21. Required reading list:

1. Predavanja – prezentacije, skripta;
2. Gad Shani, Radiation Dosimetry, Instrumentation and Methods, CRC Press, 2001.
3. Radiochemistry and Nuclear Chemistry, Gregory R. Choppin, J. Rydberg, J.-O. Liljenzin, C. Ekberg, 4th Edition, 2013, USA

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

2015/16

24. Adopted in the Faculty/Academy session: