

## SYLLABUS

**1. Course title:**

Radiopharmaceuticals

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

None.

**7. Class restrictions:**

None.

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

9.1. Lectures:

2

9.2. Seminars:

0

9.3. Laboratory/Practice classes:

0

**10. Faculty:**

Faculty of Pharmacy

**11. Department/study program:**

Pharmacy (I+II integrated cycle)

**12. Lecturer:**

dr.sc. Feriz Adrović, vanredni profesor

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

feriz.adrovic@untz.ba

**14. Web site:**

www.farmacy.untz.ba

**15. Course aims:**

Introducing students with the necessary knowledge about radionuclides and radiopharmaceuticals. Understanding the basic concepts of radiofarmacy and the application of acquired knowledge in the production and quality control of radiopharmaceuticals.

**16. Learning outcomes:**

Mastering the basic knowledge for the more successful application of radiopharmaceuticals. Quality control and radiation protection.

**17. Course content:**

Sources and types of ionizing radiation in the biosphere. Types of radioactive decomposition. Alpha breakdown. Beta decay. Range of degradation and internal conversion. Physical size in radiopharmaceutical. The Law of Radioactive Disintegration The Half-Fall Time. Effective half-life time. Activity of radioactive source. Absorbed dose. Kerma. Stopping power. Relative Biological Efficiency (RBE). Equivalent dose. Effective dose. Biologically Important Fission and Activation Radionuclides.

Methods of radionuclide application: direct or in the form of radiopharmaceuticals. Radiopharmaceuticals, definitions, basic characteristics and production. Radiopharmaceuticals for diagnostic purposes Radiopharmaceuticals for therapy purposes. Efficacy of Therapy of Physical, Chemical and Biological Characteristics of Radiopharmaceuticals. Efficacy of diagnostics of physical, chemical and biological characteristics of radiopharmaceuticals. Biological aspects of radiation protection. Radiation effects. Deterministic effects. Stochastic effects. Dose and dose effects.

**18. Learning methods:**

Lectures, tests. Teaching will be realized through lectures and exercises. The presence is obligatory for all students with active participation in the realization of teaching. This includes solving specific tasks and problems as well as wider discussion.

**19. Assessment methods:**

Test I, Test II, Final Exam. Test I and Test II will be conducted during lectures and performing experimental exercises, and the final exam will be completed after the semester is completed.

**20. Assessment components:**

The final grade consists of: attendance and active participation in lectures (lectures and exercises), passed tests and final exam.

|               |    |   |
|---------------|----|---|
| < 55,00       | 5  | F |
| 55,00 – 64,99 | 6  | E |
| 65,00 – 74,99 | 7  | D |
| 75,00 – 84,99 | 8  | C |
| 85,00 – 94,99 | 9  | B |
| 95,00 – 100   | 10 | A |

**21. Required reading list:**

1. F. Adrovic, Ionizing and Non-Radiating Radiation and Their Biological Effects (Manual in the Manuscript).
2. Gopal B. Saha, Fundamentals of Nuclear Pharmacy, Fifth Edition, Springer 2005

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

2012/2013

**24. Adopted in the Faculty/Academy session:**