



ЦЕНТЪР ЗА ОБУЧЕНИЕ – БАН

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TEMPLATE FOR A SPECIALIZED DOCTORAL COURSE (in English)

Basic Information:

Course Title: Nuclear Installations for radioisotope production. Structure and basic characteristics Of Radiochemical laboratories for radioisotope production.

Lecturer: Prof. Doctor of science Alexander Strezov.

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Total Teaching Hours: 60 educational hours.

Annotation (up to 150 words)

The Nuclear equipments for radioisotope production are Nuclear reactors and Accelerators of particles. The knowledge of the structure and main parts of reactors and accelerators, the main parameters of nuclear reactions and their application in optimizing the radioisotope production. Horizontal and vertical channels, heat column, containers, target preparation, packing are important for isotope production. The knowledge of detection measuring devices – ionization chambers, proportional counters, scintillation and semiconductor detectors are important in the whole radiochemical work for control of the isotope production. The requirements for sterility and aprotogenicity, radiochemical purity, control of chemical pollutants are crucial for the quality of the produced isotopes and radiopharmaceuticals.

Course content (brief description by topics or modules)

Topic / Module 1: Nuclear devices for isotope production.

Topic / Module 2: Radiochemical laboratories for isotope production.

Topic / Module 3: Control of the produced isotopes and radiopharmaceuticals

Teaching and assessment methods

Lectures.....

Seminars.....

Tests and examination....

Competencies acquired as a result of training (3–5 points)

Basic knowledge of technological devices and processes for radioisotope production

Literature:

1. Bozduganov A. Radioactive isotopes. Technika, Sofia, 1962 г.
2. Несмеянов А. Руководство к практическим занятиям по физическим основам радиохимии. Химия, Москва 1971.
3. Isotope and Radiopharmaceutical Production, IAEA, TechDoc 1970.
4. Rydberg J. et al., Nuclear Chemistry: Principles and Practice, Second Edition, Eds. Marcel & Dekker, 2004.



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Additional information (optional) (e.g., special requirements, laboratory equipment, prior knowledge)

Radiochemical Laboratory I class.....