



ФАРМАЦЕВТИЧЕН ФАКУЛТЕТ МЕДИЦИНСКИ УНИВЕРСИТЕТ - СОФИЯ

ул. Дунав №2, 1000 София; Тел./Факс: 02 9879 874; e-mail: dean@pharmfac.net

Approved from the Faculty council with protokol № 3/04.05.2022

DEAN:

(prof. Al. Zlatkov, DSc)

SYLLABUS

FREE ELECTIVE SUBJECT

Radiopharmaceuticals and biologically active compounds
applied for diagnostics and therapy

	SEMESTER	CLASS HOURS PER WEEK	CLASS HOURS PER ACADEMIC YEAR
Lectures	IX	2	30
Practical exercises	IX	2	30
Total class hours	IX	4	60
Method for control		Development and defence of course study	Final exam at the end of semester
Credits			5

Course description

Lecture course as well as practical lessons of program described aim to acquaint students with contemporary aspects of radiopharmaceutical application in medicinal practice – *in vivo* and *in vitro* radioisotope diagnostics and therapy of various organs and system in human body. The program includes also basic aspects from radiopharmaceuticals chemistry, methods for preparation, quality control assurance, storage requirements and radiation protection rules. Procedures for application of contrast compounds are also described. The basic principles of radiotherapy as an important part of complex therapy of cancer diseases are discussed.

Lecture program

No	Topic
1.	Radioactivity. Alfa- and beta-radioactive decay. Gamma-emmission of nucleus
2.	Activity of radioactive sources. Law of radioactive decay. Half-lives of radionuclides
3.	Radiochemistry of technetium. Radiopharmaceuticals containing technetium
4.	Radiochemistry of iodine. Iodine radiopharmaceuticals
5.	Radiochemistry of gallium and fluorine. Radiopharmaceuticals containing thallium, indium and xenon
6.	Legislation regulation of use of radiopharmaceuticals in Bulgaria
7.	Radioisotope diagnostics of cancer
8.	Radioisotope diagnostics of gastrointestinal tract, urinary system and liver
9.	Radioisotope diagnostics of central nervous system
10.	Radioisotope diagnostics of endocrine and cardiovascular system
11.	Radioisotope diagnostics of respiratory system
12.	Nuclear medicine investigation of skeletal muscular apparatus
13.	Metabolic radionuclide therapy – radioiodine therapy of benign disease of thyroid
14.	Therapy of pain syndrome at bone metastases. Radionuclide synoviarthrosis. Application of radiopharmaceuticals in therapy of myeloproliferative diseases
15.	Clinical role and application of radioimmunoassay methods

Author of program:

Assoc. Prof. Boyka Tsvetkova, PhD

Chef of department:

Prof. Alexander Zlatkov, DSc