



**48SJ-NUCMED**

**ECTS: 1**

**YEAR: 2022Z**

**NUCLEAR MEDICINE**

**NUCLEAR MEDICINE**

**COURSE CONTENT  
CLASSES**

Exercises with students on the state of knowledge in nuclear medicine aimed at nuclear medicine from products in students ability of analytical functional solutions with the potential use of the presented imaging methods in broadly understood radioactive isotope diagnostics, as well as therapy using mainly beta-emissions. As part of the practical classes, the structure of the nuclear medicine facility and standard diagnostic and therapy procedures performed at nuclear medicine facilities will be presented in the audiovisual form. As part of the presentation, the specificity of issues related to scintigraphic tests, radioisotope labeling procedures and standard quality control performed in nuclear medicine facilities will be presented

**LECTURES**

Standard methods of radioisotope diagnostics in everyday clinical practice. The topic covers the issues of clinical use of standard nuclear medicine procedures in everyday clinical practice (WB, SPECT, etc.). Radioisotope diagnostics of neuroendocrine tumors / neoplasms (NET / NEN) including functional and structural diagnostics as well as image fusion of both types of tests. Issues will include a wide range of clinical applications of imaging diagnostics methods in integrated specialized diagnostics of neuroendocrine tumors. The use of FDG-PET in oncology (clinical indications). The topic includes discussion of the recommendations for the use of the FDG-PET test in oncology based on the developed Polish Recommendations for the use of the FDG-PET test in oncology). Contemporary radioisotope therapy, clinical indications and recommendations.

**EDUCATIONAL OBJECTIVE:**

The aim of the subject of nuclear medicine is to present the basics of diagnostics and radioisotope (scintigraphy) therapy applicable in everyday clinical practice. Classes are aimed at presenting the current state of knowledge in the field of nuclear medicine with the students developing the possibility of an analytical approach to functional (scintigraphic) diagnostics with the potential use of radioisotope methods in broadly understood imaging diagnostics as well as in therapy using radioisotopes. The current state of knowledge on this subject will be synthetically presented to students, with the intention of deepening their knowledge and developing the possibility of a very broad, unrestricted approach to clinical issues related to imaging diagnostics. These classes will be an introduction to the potential use of scintigraphic methods in the assessment of metabolic pathological changes, responses to various therapy methods used and the visual "follow-up".

**DESCRIPTION OF LEARNING OUTCOMES FOR THE COURSE IN RELATION TO FIELD AND MAJOR LEARNING OUTCOMES**

Codes of learning outcomes in a major field of study: M/NM+++ , M/NMA\_P7S\_UW+,

Codes of learning outcomes in a major area of study: B.U1.+ , B.U2.+ , B.U3.+ , B.W8.+ , F.W10.+ , K.2.+ , K.5+ , KA7\_UW4+ ,

**LEARNING OUTCOMES:**

**Knowledge**

W1 - KKnows the physical basics of non-invasive imaging methods  
W2 - He knows the problems of modern imaging examinations, in particular he knows: radiological symptomatology of basic diseases, instrumental methods and imaging techniques used to perform therapeutic procedures, indications, contraindications and preparation of patients for individual types of imaging examinations and contraindications for the use of contrast agents;

**Skills**

U1 - Assesses the harmfulness of the dose of ionizing radiation and applies to the principles of radiation protection  
U2 - calculates molar and percentage compounds; calculates the concentration of a substance in isoosmotic solutions, one- and multi-component  
U3 - Uses knowledge of the laws of physics to explain the effects of external factors such as temperature, acceleration, pressure, electromagnetic field and ionizing radiation on the body and its elements  
U4 - understands the possibilities and needs of using, among others scintigraphic tests, radioisotope diagnosis in the diagnosis and treatment of selected oncological diseases, including indications for diagnostic tests and treatment.

**Social competence**

K1 - is guided by the good of the patient, putting them first  
K2 - has awareness of its own limitations and the ability to continually improve itself

**BASIC LITERATURE**

1) GJR Cook, MN Maisey, KE Britton V. Chengazi., Clinical Nuclear Medicine , wyd. american College of Nuclear Medicine, 2007, t. t.4 ; 2) HJ Biersak LM Freeman, Clinical Nuclear Medicine , wyd. Springer Science & Business Media, 2007 ; 3) Michael K. O'Connor, The Mayo Clinic Manual of Nuclear Medicine, wyd. Mayo Clinic, 1996

**SUPPLEMENTARY LITERATURE**

<b>Course/module:</b>	
Nuclear Medicine	
<b>Fields of education:</b>	
<b>Course status:</b>	mandatory
<b>Course group:</b>	B - przedmioty kierunkowe
<b>ECTS code:</b>	12048-3-B
<b>Field of study:</b>	Medicine
<b>Specialty area:</b>	Medicine
<b>Educational profile:</b>	General academic
<b>Form of study:</b>	full-time
<b>Level of study:</b>	uniform master's studies
<b>Year/semester:</b>	3 / 5
<b>Type of course:</b>	
Classes, Lecture	
<b>Number of hours per semester/week:</b>	Classes: 5, Lecture: 10
<b>Teaching forms and methods</b>	
Classes(K1, K2, U1, U2, U3, U4, W1, W2) : Fundamentals of radioisotope diagnostics, specialized nuclear medicine procedures, Lecture(K2, U1, U3, U4, W1, W2) : Multimedia presentations	
<b>Form and terms of the verification results:</b>	
CLASSES: Competention test - Competency test - the condition for passing is 60% correct answers(K1, K2, U1, U2, U3, U4, W1, W2) ; LECTURE: Exam - Competency test - the condition for passing is 60% correct answers(K1, K2, U1, U2, U3, U4, W1, W2)	
<b>Number of ECTS points:</b>	1
<b>Language of instruction:</b>	English
<b>Introductory courses:</b>	
<b>Preliminary requirements:</b>	
1. Anatomy 2. Physiology 3. Biochemistry 4. Pathophysiology 5. Histology 6. Pathological anatomy 7. Internal diseases - introduction 8. Biophysics	
<b>Name of the organizational unit offering the course:</b>	
Katedra Kardiologii i Chorób Wewnętrznych,	
<b>Person in charge of the course:</b>	
dr hab. n. med. Jarosław Œwikła, prof. UWM	
<b>Course coordinators:</b>	
<b>Notes:</b>	

## Detailed description of the awarded ECTS points - part B

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### **NUCLEAR MEDICINE NUCLEAR MEDICINE**

The awarded number of ECTS points is composed of:

1. Contact hours with the academic teacher:

- participation in: classes	5 h.
- participation in: lecture	10 h.
- consultation	2 h.
	17 h.

2. Student's independent work:

-	8 h.
	8 h.

1 ECTS point = 25-30 h of the average student's work, number of ECTS points = 25 h : 25 h/ECTS = 1,00 ECTS  
on average: **1 ECTS**

- including the number of ECTS points for contact hours with direct participation of the academic teacher:	0,68 ECTS points,
- including the number of ECTS points for hours completed in the form of the student's independent work:	0,32 ECTS points,