1.	Field of study	Biophysics
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	first-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	General information about the module
Module name	**Nuclear Physics in Medical Research**
Module code	W4-BF-OO-S1-6-23-48
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	The module introduces students to the basic concepts of nuclear physics and their relation to medical research. Students gain knowledge about the structure of matter, the basic building blocks and interactions between them, as well as types of nuclear radiation, radioactive decay, interactions of radiation with matter, and the applications of these phenomena in medical diagnostics and therapy. Through lectures and practical laboratory classes, students develop analytical and practical skills relevant to medical research using nuclear physics.
List of modules that must be completed before starting this module (if necessary)	not applicable

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
E1	The student knows the fundamental laws and formulas of nuclear physics necessary to understand the principles of operation of the research instruments and to determine the scope of their applications.	U01 W02 W06	1 1 1
E2	The student has an expanded knowledge of the experimental methods used in nuclear physics, is able to conduct an experiment, analyze the data obtained and prepare a report on the research.	U03 U04 U05 U06 W06 W07 W08	1 1 1 1 1 1 1
E3	The student has the ability to work in a team, estimate the time and resources needed to complete the assigned task, understand the division of tasks and the need to fulfill the assigned task.	K04 U10	1 1
E4	The student can obtain information from literature, databases and other sources to correctly interpret obtained results and to draw and formulate conclusions about the structure and properties of matter.	K02	1

		U08	1
E5	The student knows and understands the principles of laboratory work, takes care of safety and hygiene in the biological laboratory, and conscientiously analyses experimental data.	U10 W10	1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
FZ1	lecture	30	course work	E2, E5	a01
FZ2	laboratory classes	30	course work	E1, E3, E4	a05, e01

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a02	Preparation for classes	Literature reading / analysis of source materials *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	No
a03	Preparation for classes	Developing practical skills *activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion *a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory phase/element of the verification of the learning outcomes assigned to the course*	Yes
d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes *reading through the academic teacher's comments, assessments and opinions on the implementation*	No

		of the task aimed at checking the level of the achieved learning outcomes	
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	Yes

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.