1.	**Field of study**	**Physics**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2025/2026 (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	**Fundamentals of Physics: Optics and Structure of Matter**
Module code	W4-FZ-S1-4-23-15
Number of the ECTS credits	7
Language of instruction	Polish
Purpose and description of the content of education	As part of the module, students will participate in lectures with demonstrations and seminar classes. The aim of the lecture is to familiarize students with the issues related to electromagnetic waves, interaction of light with matter, geometric and wave optics, as well as quantization of electromagnetic radiation, particle-wave duality of matter, and the basics of quantum physics, especially the Schrödinger equation. The aim of the classes is to acquire problem solving skills, checking the understanding of the issues discussed during the lecture.
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 and uses the principles of optics and structure of matter to formulate a physical problem and find its solution.	U02 W03	1 1
E2	The student is able to explain the importance of experiments for the progress of science.	K04 W03	1 1
E3	The student can obtain information from literature, databases and other sources to deepen his understanding of the laws of physics.	K03 U05	1 1
E4	The student is prepared to study further fields of physics, such as quantum mechanics.	U02	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*
b02	Problem-solving methods	Lecture-discussion

		transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*

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	60	exam	E2, E4	a01
FZ2	discussion classes	60	course work	E1, E3	b02, b07

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
a05	Preparation for classes	Production/preparation of tools, materials or documentation necessary for class participation *developing, preparing and assessing the usefulness of tools and materials (e.g. aids, scenarios, research tools, equipment, etc.) to be employed in class or as an aid when preparing for classes*	No

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.