1.	**Field of study**	**Physics**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2022/2023 (winter term), 2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Code of the learning outcome of the programme	**Learning outcomes** The graduate:	Codes of the second-order PRK characteristics to which the learning outcome of the programme is related
KNOWLEDGE		
KF_W01	properly understands the civilisational importance of physics and its applications as well as its historical development and the role in the progress of science	2018_P7S_WG
KF_W02	has an in-depth knowledge of selected branches of theoretical and experimental physics	2018_P7S_WG
KF_W03	has an extended knowledge of quantum mechanics and statistical physics	2018_P7S_WG
KF_W04	has an in-depth knowledge of condensed phase physics	2018_P7S_WG
KF_W05	knows and understands the description of physical phenomena within selected theoretical models; can independently reproduce basic physical laws	2018_P7S_WG
KF_W06	knows mathematical formalism useful in constructing and analysing physical models of medium complexity; understands the consequences of using approximate methods	2018_P7S_WG
KF_W07	knows the basics of computational and IT techniques supporting the work of a physicist and understands their limitations	2018_P7S_WG
KF_W08	knows the construction and functioning of scientific apparatus	2018_P7S_WG
KF_W09	knows the basic principles of occupational health and safety to the extent that allows independent work at the research or measurement position	2018_P7S_WG
KF_W10	has an in-depth knowledge of selected scientific methods and is familiar with the issues characteristic of the discipline of science not related to the programme	2018_P7S_WK
W_OOD	has in-depth knowledge of selected scientific methods and knows problems characteristic of a particular field of science unrelated to the leading discipline of the study programme.	2018_P7S_WG, 2018_P7S_WK
SKILLS		
KF_U01	is able to clearly present the results of scientific discoveries and theories in the field of physics in speech and writing	2018_P7S_UW
KF_U02	can use a mathematical apparatus to solve physical problems of medium complexity	2018_P7S_UW
KF_U03	can explain the physical processes occurring in the surrounding world based on the knowledge gained	2018_P7S_UW
KF_U04	can explain the functioning of the research apparatus based on the knowledge gained	2018_P7S_UW
KF_U05	can plan and perform various types of physical measurements and experiments	2018_P7S_UW
KF_U06	is able to choose the right measurement method for a specific problem and the expected effect	2018_P7S_UW
KF_U07	is able to critically analyse and interpret the results of measurements, observations and theoretical calculations	2018_P7S_UW
KF_U08	can discuss measurement errors, identify their sources and assess the consequences	2018_P7S_UW
KF_U09	can use mathematical formalism to build and analyse physical models	2018_P7S_UW
KF_U10	can describe micro and macroscopic properties of the matter based on the knowledge gained and the research conducted	2018_P7S_UW

KF_U11	is able to prepare the elaboration of the study results, including explanation of the aim of the study, adopted methodology, description, analysis and discussion of the results obtained and their significance compared to similar studies	2018_P7S_UW
KF_U12	is able to obtain information from literature, databases and other sources; is familiar with basic scientific journals in physics; is able to integrate and interpret the obtained information, draw conclusions and formulate and justify opinions	2018_P7S_UW
KF_U13	has a sufficient command of English (B2+) to use the specialist literature and to present research results	2018_P7S_UW
KF_U14	is able to apply the obtained knowledge in physics to the discussion of problems in related scientific fields and disciplines	2018_P7S_UW
KF_U15	has an in-depth ability to prepare various written studies in Polish and English on specific physics-related issues or issues from different scientific disciplines	2018_P7S_UK
KF_U16	has an in-depth ability to prepare and present an oral presentation on physics or interdisciplinary issues in Polish and English, using modern multimedia techniques	2018_P7S_UK
KF_U17	is able to determine the directions of further learning and implement the process of self-education e.g. to improve professional competence	2018_P7S_UU
KF_U18	has an in-depth ability to pose and analyse problems based on the content acquired from the discipline of science not related to the programme	2018_P7S_UW
KF_U19	communicates in a foreign language using advanced language communication competences and has the ability to comprehensively read complex scientific texts and an in-depth ability to prepare various written works (including research) and oral presentations on specific issues in a given programme in a foreign language	2018_P7S_UK
U_OOD	has advanced skills to set scientific questions and analyse problems or to solve problems practically on the basis of the course content, experience and skills gained in a particular field of science unrelated to the leading discipline of the study programme.	2018_P7S_UW
SOCIAL COMPETENCES		
KF_K01	understands the need for further education and can inspire and organise the learning process of others	2018_P7S_KK
KF_K02	is able to precisely formulate questions to deepen their own understanding of a given topic or to find the missing elements of reasoning	2018_P7S_KK
KF_K03	is able to work in a group adopting different roles; is able to identify priorities for conducting the task specified by themselves or others	2018_P7S_KO
KF_K04	understands the need for regular reading of scientific and popular science journals to broaden and deepen the knowledge of physics	2018_P7S_KK
KF_K05	understands and appreciates the importance of intellectual honesty in their own and others' actions; acts ethically	2018_P7S_KR
KF_K06	is aware of the responsibility for research initiatives; understands social aspects of applying the knowledge acquired	2018_P7S_KO
KF_K07	is able to listen to a different opinion and professionally discuss the issue in question	2018_P7S_KO
KF_K08	can think and act in an entrepreneurial way	2018_P7S_KO
KF_K09	understands the need for an interdisciplinary approach to solving problems, integrating knowledge from different disciplines and practising self-education to deepen the acquired knowledge	2018_P7S_KK
KS_OOD	understands the need for multidisciplinary approach to problem solving, integrating knowledge or using skills from various disciplines, and practicing self-study for deepening the acquired knowledge.	2018_P7S_KK