Learning outcomes of the programme:

1.	**Field of study**	**Medical Physics**
2.	Academic year of entry	2017/2018 (summer term), 2018/2019 (summer term)
3.	Level of qualifications/degree	second-cycle studies
4.	Degree profile	general academic

Code of the learning outcome of the programme	**Learning outcomes** The graduate:	Codes of the learning outcomes of the areas of education to which the learning outcome of the programme is related
KNOWLEDGE		
KFM_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	X2A_W01
KFM_W02	has an in-depth knowledge of selected branches of theoretical and experimental physics	X2A_W01, X2A_W05, X2A_W06
KFM_W03	has an extended knowledge of bioelectricity and biomagnetism	M2_W02, X2A_W01, X2A_W02, X2A_W06
KFM_W04	knows the basics of radiobiology	M2_W01, X2A_W01
KFM_W05	has a thorough knowledge of the use and development of modern physics methods for biomolecular and biomedical research	X2A_W01, X2A_W03, X2A_W05, X2A_W06
KFM_W06	knows and understands the description of physical phenomena within selected theoretical models	X2A_W01, X2A_W02, X2A_W06
KFM_W07	has an extended knowledge of statistics and computer science at a level that allows description and interpretation of the results of research related to physical and natural phenomena and medical experiments	X2A_W02, X2A_W03, X2A_W04
KFM_W08	knows the structure and theoretical basis of functioning of scientific and medical equipment	M2_W07, X2A_W03, X2A_W05
KFM_W09	has a general knowledge of current developments and the latest findings in medical physics	X2A_W06
KFM_W10	is familiar with quality management systems in QA medical laboratories	M2_W08, M2_W10, X2A_W08
KFM_W11	knows advanced nuclear techniques in medicine or advanced visible light and infrared and magnetic resonance techniques depending on their major	M2_W07, X2A_W03, X2A_W05, X2A_W06
KFM_W12	knows the basic principles of occupational health and safety to the extent that allows independent work in the research and measurement position and in the profession of medical physicist	X2A_W07
KFM_W13	knows the current legal basis for research and medical applications of (non)-ionising radiation	X2A_W08
KFM_W14	has an in-depth knowledge of selected scientific methods and is familiar with issues specific to the discipline of science not related to the programme	
SKILLS		
KFM_U01	is able to clearly present the results of scientific discoveries and theories in the field of physics in speech and writing	X2A_U06, X2A_U08, X2A_U09
KFM_U02	can explain the physical processes that occur in the world based on the knowledge acquired	X2A_U01, X2A_U04
KFM_U03	can explain the operation of research and medical equipment based on the knowledge acquired	M2_U03, X2A_U04
KFM_U04	can plan and carry out various types of physical and biomedical measurements and experiments	M2_U02, X2A_U01, X2A_U04
KFM_U05	is able to choose the right measurement method for a specific problem and the expected effect	X2A_U01
KFM_U06	is able to critically analyse and interpret results of measurements and observations	M2_U06, X2A_U02
KFM_U07	can discuss measurement errors, identify their sources and assess the consequences	X2A_U02
KFM_U08	is able to use modern physics methods for biomolecular and biomedical research	M2_U02, X2A_U01, X2A_U04
KFM_U09	can describe micro- and macroscopic properties of the matter based on the knowledge gained and the conducted research	X2A_U02, X2A_U03, X2A_U04
KFM_U10	is able to prepare the elaboration of 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	M2_U13, X2A_U02, X2A_U03, X2A_U05
KFM_U11	is able to obtain information from literature, databases and other sources; is familiar with basic scientific journals in physics; is able to integrate the obtained information and interpret it, draw conclusions and formulate and justify opinions	M2_U06, X2A_U03, X2A_U07

KFM_U12	has a sufficient command of English (B2+/CEFR) to use professional literature and present study results	M2_U15, X2A_U10
KFM_U13	is able to apply the knowledge gained in physics to the discussion of problems related to medical physics and related scientific fields and disciplines	M2_U03, X2A_U04, X2A_U06
KFM_U14	has an in-depth ability to prepare various written papers in Polish and English that are connected with specific physics-related issues or issues related to different scientific disciplines	M2_U13, X2A_U08
KFM_U15	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	X2A_U09
KFM_U16	is able to determine the directions of further learning and implement the process of self-education e.g. in order to improve professional competences	X2A_U07
KFM_U17	is able to cooperate in the planning and implementation of research tasks	M2_U08
KFM_U18	has an in-depth ability to pose and analyse problems based on the content obtained from the discipline of science not related to the programme	
SOCIAL COMPETENCES		
KFM_K01	understands the need for further education and can inspire and organise the learning process of other people	M2_K01, X2A_K01, X2A_K05
KFM_K02	is able to precisely formulate questions to deepen their own understanding of a given topic or to find the missing elements of reasoning	M2_K02, X2A_K01, X2A_K02
KFM_K03	is able to work in a group adopting different roles; is able to identify priorities for carrying out a task specified by themselves or others	M2_K04, X2A_K02, X2A_K03
KFM_K04	understands the need for regular reading scientific and popular science journals to broaden and deepen knowledge of medical physics	M2_K01, X2A_K05
KFM_K05	understands and appreciates the importance of intellectual honesty in the actions of their own and others; acts ethically	X2A_K04
KFM_K06	is aware of the responsibility for research initiatives; understands social aspects of applying the knowledge and skills gained and the associated responsibility	M2_K06, X2A_K06
KFM_K07	is able to listen to a different opinion and professionally discuss the issue in question	M2_K02, X2A_K02, X2A_K03
KFM_K08	can think and act in an entrepreneurial way	X2A_K07
KFM_K09	inspires the medical team they cooperate with, drawing attention to new possibilities in the process of diagnosis and treatment	M2_K04, X2A_K02
KFM_K10	understands the need for popular presentation of selected achievements of medical physics to laymen	X2A_K05, X2A_K06
KFM_K11	is able to take care of their own safety and the safety of the surroundings and colleagues	M2_K07
KFM_K12	understands the need for an interdisciplinary approach to solving problems, integrating knowledge from different disciplines and practising self-education to deepen the knowledge gained	