

1.1 Description of expected learning outcomes with the assignment of the field of study to the fields of science and scientific disciplines or the fields of art and artistic disciplines to which the learning outcomes for this field apply.

Symbol	Learning outcomes for the course of study PHYSICS. After completing undergraduate studies in PHYSICS undergraduate:	Reference of learning outcomes in education in science
KNOWLEDGE		
K1A_W01	Has general knowledge of classical and modern physics, measuring methods of physics and astronomy, which allows to understand the fundamental physical phenomena of the surrounding world, knows the causal links between them.	P6S_WG-O1 P6S_WK-O2.1
K1A_W02	Has sufficient knowledge of linear algebra and geometry, mathematical analysis and mathematical methods in physical sciences to allow quantitative description, understanding and modeling of physical problems with a medium level of complexity, in particular, knows matrix calculus, vector analysis, differential and integral calculus of functions of one and several variables	P6S_WG-O1
K1A_W03	Understands and can explain descriptions of phenomena and processes in physical sciences using the language of mathematics, can independently restore the claims and the laws of physics and selected calculations; is able to create a theoretical model of the phenomenon and relate it with the measurement's results	P6S_WG-O1
K1A_W04	Has general knowledge of computer techniques involving work in Linux operating system, has knowledge of other operating systems, knows databases, tools for analysis, processing and presentation of data, uses programming as a tool for solving problems in the field of physical sciences, mathematics and technology and modern applications of information technology	P6S_WG-O1
K1A_W05	Knows the basic aspects of the design and principles of working with equipment used in the physical sciences, can measure a physical quantity and interpret it	P6S_WG-O1
K1A_W06	Knows the basic principles of health and safety, recognizes hazards and selects the appropriate security measures to prevent them	P6S_WK-O2.2

K1A_W07	Has basic knowledge of the legal and ethical issues of scientific and educational activities	P6S_WK-O2.2
K1A_W08	Has basic knowledge of copyright, intellectual property protection, using the appropriate licenses and rights for scientific personal and commercial activity	P6S-WK-O2.2
K1A_W09	Is able to identify and select appropriate free software (alternative to commercial one) and tools of IT to enable and support the development of individual entrepreneurship and identify and characterize areas of its application in the physical sciences and technology	P6S_WK-O2.3
K1A_W10	Knows at least one foreign language at the intermediate level (B2)	P6S_WG-O1
SKILLS		
K1A_U01	Is able to analyze and solve problems in the physical sciences, basing on acquired knowledge and information from available literature, databases, online resources in both and foreign languages	P6S_UW-O3 P6S_UK-O4.3
K1A_U02	Is able to perform the analysis of theoretical and experimental results, and on this basis to formulate appropriate conclusions	P6S_UW-O3 P6S_UK-O4.1
K1A_U03	Applies the methodology of physical measurements, can plan and carry out simple physical measurements, analyze measurement data, interpret and present the results of measurements	P6S_UW-O3 P6S_UK-O4.1 P6S_UK-O4.2 P6S_UO-O5.1 P6S_UO-O5.2
K1A_U04	Is able to work at Linux user level, can move in the system directory using the desktop and console, uses standard tools of Linux system, finds, evaluates and uses Open Source software to solve problems in the physical sciences	P6S_UW-O3
K1A_U05	Can discuss topics presenting a specific physical problem and provide its possible solutions	P6S_UW-O3
K1A_U06	Can talk about topics in the physical sciences using comprehensible simple language	P6S_UK-O4.1 P6S_UK-O4.2
K1A_U07	Can independently acquire knowledge and develop own skills using a variety of sources (in Polish and foreign languages) and modern technology	P6S_UK-O4.3 P6S_UU-O6 P6S_UO-O5.1
K1A_U08	Has the ability to prepare typical works written in Polish and foreign language from the physical sciences, using basic theoretical issues, as well as a variety of sources	P6S_UK-O4.1 P6S_UK-O4.3
K1A_U09	Has the ability to prepare oral presentations, in Polish and a foreign language, using basic theoretical approaches, as well as a variety of sources	P6S_UK-O4.1 P6S_UK-O4.2 P6S_UK-O4.3

K1A_U10	Has language skills in the physical sciences in accordance with the requirements for level B2 of the Common European Framework of Reference for Languages	P6S_UK-O4.3
	SOCIAL COMPETENCE	
K1A_K01	Is aware of own knowledge and skills, understands the need and knows the possibilities of continuous further education (studies of the second and third cycles, post-graduate studies) - raising professional and personal competences	P6S_KK-O7.1 P6S_KK-O7.2
K1A_K02	Is aware of the responsibility for own work and willing to comply with the principles of teamwork and responsible for the common tasks performed	P6S_KR-O9
K1A_K03	Is conscious of the importance of behaving in a professional manner, the principles of ethics and respect for diversity of views	P6S_KR-O9
K1A_K04	Understands the need to raise professional and personal competences; uses various sources of information in order to broaden and deepen own knowledge	P6S_KK-O7.1 P6S_KK-O7.2
K1A_K05	Is aware of the social role of a graduate in physics, and especially understands the need for formulating and providing the public with information and opinions on developments in the physical sciences, makes efforts to provide such information and opinions in a commonly understood manner	P6S_KO-O8.1 P6S_KO-O8.2
K1A_K06	Is able to think and act in an entrepreneurial way	P6S_KO-O8.3