TABLE of LEARNING OUTCOMES

Name of the field of study: INFORMATION TECHNOLOGY
level of education: first-cycle Bachelor's studies
POLISH QUALIFICATIONS FRAMEWORK – LEVEL 6
profile: practical
disciplines:
- *field: Engineering and technology – discipline: information and communication technology (100%)*

symbol	Learning outcomes for the field of study On completing first-cycle Information Technology studies, the graduate:	Reference to second stage descriptors of the POLISH QUALIFICATIONS FRAMEWORK
	KNOWLEDGE	
K_W01	has knowledge of mathematics necessary for: logical thinking, description and analysis of algorithms, analysis and development of computer programs, description and analysis of the operation and construction of computers and computer systems, construction and analysis of databases, understanding the mathematical foundations of econometric models, understanding the mathematical foundations of computer graphics, understanding concepts related to artificial intelligence, understanding the theoretical foundations of computer science	P6S_WG
K_W02	has knowledge of physics necessary to understand basic physical phenomena used in computer networks and systems, as well as knowledge of electromagnetic fields and waves, including knowledge necessary to understand the generation and wired and wireless transmission of information	P6S_WG
K_W03	has structured knowledge of programming methodology and techniques, including: - basic algorithmic techniques, - the importance of algorithmic thinking in various areas of human activity	P6S_WG
K_W04	has knowledge of techniques and methods for evaluating and testing IT tools and solutions	P6S_WG
K_W05	has knowledge of computer architecture, IT and ICT systems and networks, operating systems, necessary for: installation, configuration, operation and maintenance of devices included in them	P6S_WG
K_W06	knows and understands important facts, concepts, principles and theories concerning computer science and software, including elements of information management and processing	P6S_WG
K_W07	knows and understands the methods, tools, theories and practices used to design and implement software, taking into account the stages of defining requirements, specification, validation and testing of software	P6S_WG
K_W08	has elementary knowledge of the life cycle of computer devices and systems	P6S_WK

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K_W09	knows and understands the cultural, social, economic, legal and ethical aspects and standards of using computer technologies, the communication process and the activities of an IT specialist	P6S_WK
K_W10	knows and understands the basic concepts and principles of industrial property protection and copyright, as well as quality management and starting and running a business	P6S_WK
K_W11	knows the standards and principles of effective functioning in the social environment	P6S_WG
~~K_W12~~	*deleted*	
K_W13	has knowledge about the tools and methods of analysis for effective and correct thinking	P6S_WK
K_W14	knows and understands the principles of modelling and designing IT systems and understands the importance of compromises in the phase of selecting a design solution	P6S_WK
K_W15	knows the principles of selecting and specifying criteria, standards and norms which allow for effective planning of a strategy for solving specific problems	P6S_WK
SKILLS		
K_U01	can effectively acquire and manage knowledge and information from literature, databases and other sources, taking into account the conditions resulting from principles of information protection and security, interpret them, draw conclusions and formulate and justify opinions	P6S_UW
K_U02	can work individually and in a team, communicating through various communication channels; can estimate the time needed to complete an assigned task; can develop a schedule and complete work ensuring that deadlines are met	P6S_UW P6S_UK P6S_UO
K_U03	can develop documentation regarding the implementation of an IT task and prepare a text containing a discussion of the results of that task	P6S_UK
K_U04	can communicate the results of their activities using various communication methods and techniques	P6S_UK
K_U05	has the ability to prepare typical written works and oral presentations in a foreign language (in accordance with the requirements specified for level B2 of the Common European Framework of Reference for Languages) within the scope of their field of study using basic theoretical approaches and various sources	P6S_UK
K_U06	can properly organize their own professional activity and manage the process of their own development and learning	P6S_UU
K_U07	can evaluate an IT solution in the context of general qualitative and quantitative features, taking into account existing limitations	P6S_UW
K_U08	can use computer hardware and software correctly and effectively	P6S_UW
K_U09	can effectively employ tools used in the design and documentation of the software production process, with particular emphasis on software control tools, including version and configuration management control	P6S_UW

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K_U10	can consciously and effectively use reusable resources and available IT technologies in the implementation of engineering tasks, including tasks integrating acquired knowledge and containing a research component	P6S_UW
K_U11	can design, implement, verify correctness and debug simple programs and construct algorithms using basic algorithmic techniques, and assess their complexity	P6S_UW P6S_UO
K_U12	can develop a specification, and design and implement a complex IT solution containing a research element implemented according to a specified procedure	P6S_UW P6S_UO
K_U13	can apply the principles of human-computer interaction to the design and evaluation of interactive computer systems, including user interfaces, websites, multimedia systems and mobile systems	P6S_UW
K_U14	has experience in solving practical IT tasks, gained in an environment professionally involved in IT activities (vocational training), applies the principles of occupational health and safety	P6S_UW
K_U15	when formulating and solving tasks involving the design of IT solutions, can take into account their non-technical aspects, including environmental, economic and legal ones	P6S_UW P6S_UO
K_U16	can assess the usefulness of routine methods and tools for solving simple engineering tasks, typical for IT, and select and apply appropriate methods and tools	P6S_UW
K_U17	can propose a solution to a given IT task by comparing existing solutions, determine its specification and compliance with existing norms and standards, verify the implemented solution and assess the positive and negative aspects of the proposed solution	P6S_UW P6S_UO P6S_UK
K_U18	has experience in maintaining devices, facilities and technical systems typical of their field of study	P6S_UW
K_U19	can use appropriately selected methods and devices enabling the measurement of basic physical quantities, including quantities characterizing electronic elements and systems	P6S_UW
K_U20	can apply the methods and mathematical models learned to determine the quantitative dimension of an IT problem	P6S_UW
K_U21	can identify and assess the level of risk resulting from the use of IT technologies and propose solutions aimed at reducing it	P6S_UW
K_U22	can apply selected methods, mathematical models, including analytical, experimental or simulation ones, in the design and implementation of IT tasks or examination of existing solutions	P6S_UW
SOCIAL COMPETENCES		
K_K01	understands the need for and knows the possibilities of lifelong education (second-cycle and doctoral studies, postgraduate studies, courses) – improving professional, personal and social competences	P6S_KK
K_K02	is aware of the importance and understands the non-technical aspects and effects of IT activities, including their impact on the environment, and the related responsibility for decisions made	P6S_KO P6S_KR
K_K03	is aware of the importance of behaving in a professional manner, observing the principles of professional ethics and respecting the diversity of views and cultures	P6S_KR

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K_K04	is aware of the responsibility for own work for the public interest and actions taken, carried out independently as well as in a team	P6S_KR
K_K05	can think and act in an entrepreneurial manner	P6S_KO
K_K06	is aware of the social role of a technical university graduate, and in particular understands the need to formulate and communicate to society – e.g. through the mass media – information and opinions on the achievements of computer science and other aspects of IT activities; makes efforts to convey such information and opinions in a generally understandable way	P6S_KR
K_K07	is characterized by constant readiness and openness to understand cognitive problems and solve practical issues on their own, seeking expert opinions if necessary	P6S_KK