

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 educational profile: practical disciplines: - <i>field: Engineering and technology – discipline: information and telecommunication technology (100%)</i>		
symbol	Learning outcomes for the field of study On completing first-cycle INFORMATION TECHNOLOGY studies, the graduate:	Reference to second stage de- scriptors of the POLISH QUALIFICATIONS FRAMEWORK
KNOWLEDGE		
K_W01	has an advanced knowledge and understanding of the concepts, mathematical concepts, methods and theories necessary for logical thinking, the description and analysis of algorithms, the development of computer programmes, the description of the structure and operation of computers and computer systems, the design and analysis of databases, as well as those constituting the mathematical foundations of econometric models, computer graphics, artificial intelligence and the theoretical foundations of computer science;	P6S_WG
K_W02	has an advanced knowledge and understanding of physics, including the physical phenomena used in computer networks and systems, as well as electromagnetic fields and waves, which are essential for understanding the generation and wired and wireless transmission of information;	P6S_WG
K_W03	has an advanced knowledge and understanding of programming methodology and techniques, including basic algorithm techniques and the importance of algorithmic thinking in various areas of human activity;	P6S_WG
K_W04	has knowledge and understanding of the techniques and methods for evaluating and testing IT tools and solutions;	P6S_WG
K_W05	has advanced knowledge and understanding of computer architecture, operating systems, and IT and telecommunications networks, including the principles of installation, configuration, operation and maintenance of the equipment forming part thereof;	P6S_WG
K_W06	has knowledge and understanding of the key facts, concepts, principles and theories relating to computer science and software, including aspects of information management and processing;	P6S_WG
K_W07	has knowledge and understanding of the methods, tools, theories and practices used in software design and implementation, taking into account the stages of requirements definition, specification, validation and testing of software;	P6S_WG
K_W08	has knowledge and understanding of the basic processes occurring throughout the life cycle of computer equipment and systems;	P6S_WK
K_W09	has knowledge and understanding of the cultural, social, economic, legal and ethical aspects and standards relating to the use of computer technology, the communication process and the work of IT professionals;	P6S_WK
K_W10	has knowledge and understanding of the basic concepts and principles relating to industrial property protection and copyright, as well as to quality management and the establishment and running of a business;	P6S_WK

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K_W11	has knowledge and understanding of the norms and principles governing behaviour in a social context, as well as the social aspects of professional practice;	P6S_WG
K_W12	has knowledge and understanding of the current state and latest trends in the development of information technology;	P6S_WK
K_W13	has knowledge and understanding of the principles of modelling and designing information systems, and understands the importance of trade-offs when selecting a design solution;	P6S_WK
K_W14	has knowledge and understanding of the principles of selecting and specifying criteria, standards and norms that enable the effective planning of strategies to solve specific problems;	P6S_WK
SKILLS		
K_U01	can acquire and organise knowledge and information from literature, databases and other sources, whilst observing the principles of information protection and security; can evaluate, critically analyse and synthesise this information; and can formulate well-founded conclusions and opinions on this basis;	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	can prepare typical written work and oral presentations in a foreign language at B2 level of the Common European Framework of Reference for Languages, on topics relevant to 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
K_U10	can consciously and effectively use reusable resources and available IT technologies in the implementation of IT 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

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K_U14	can solve practical professional tasks typical of IT work, drawing on the experience gained during internship, whilst complying with health and safety at work regulations;	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 select and apply appropriate methods and tools to solve simple tasks typical of computer science, assessing their suitability in a given context;	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	can maintain the equipment and systems typical of their field of study, drawing on the experience gained during their internship;	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 mathematical methods and models learned to determine the scope of an IT problem;	P6S_UW
K_U21	can identify and assess the level of risk arising from the use of information technology, 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	is ready to assess their existing knowledge critically and to recognise the importance of continuous learning and the development of their professional, personal and social skills;	P6S_KK
K_K02	is ready to take into account the non-technical aspects and consequences of IT work, including its impact on the environment, and to take responsibility for the decisions they make;	P6S_KO P6S_KR
K_K03	is ready to fulfil professional roles in a professional manner, to adhere to the principles of professional ethics, and to respect diversity of views and cultures;	P6S_KR
K_K04	is ready to take responsibility for their own work and to act in the public interest, both independently and as part of a team;	P6S_KR
K_K05	is ready to think and act in an entrepreneurial manner;	P6S_KO
K_K06	is ready to fulfil the social role of a graduate of a technical university, including formulating and communicating to the public – inter alia through the mass media – information and opinions concerning achievements in computer science and other aspects of a computer scientist's work in a manner that is widely understood;	P6S_KR
K_K07	is ready to recognise the importance of knowledge in solving cognitive and practical problems, and to seek expert advice when encountering difficulties in solving a problem independently.	P6S_KK