

## Learning outcomes

Outcome symbol	After completing first-cycle studies in computer science and econometrics, the graduate:	Reference to PRK level 6
<b>KNOWLEDGE</b>		
K_W01	understands the significance of computer science, econometrics and mathematics for the development of society and economy	P6S_WK-O2.1
K_W02	demonstrates basic knowledge of economics, management, finance, law, and computer science	P6S_WK-O2.2
K_W03	has theoretical knowledge of mathematics necessary for modeling and analyzing problems in computer science, as well as for modeling and analyzing phenomena in economics	P6S_WG-O1
K_W04	knows statistical and econometric methods and tools necessary for analyzing economic phenomena, both in macro and microeconomic scale	P6S_WG-O1
K_W05	knows fundamentals of both computational techniques and programming used for solving practical problems, and in economic applications	P6S_WK-O2.2
K_W06	knows quantitative models and methods which support making rational economic decisions	P6S_WG-O1
K_W07	knows practical applications of basic probability distributions	P6S_WG-O1
K_W08	knows basic concepts and theorems concerning relational database model	P6S_WG-O1
K_W09	knows classification principles and functionality of information systems, knows life cycle of an information system and knows at least one software development methodology (process)	P6S_WG-O1
K_W10	knows fundamentals of computer system design and is familiar with at least one object-oriented programming language	P6S_WG-O1
K_W11	demonstrates the knowledge of computer architecture, knows basic functions of an operating system, basic information concepts and information techniques	P6S_WG-O1
K_W12	knows basic concepts and principles of how computer networks and the Internet operate	P6S_WG-O1
K_W13	has achieved English language proficiency equivalent to level B2 of European Framework of Reference for Languages and is familiar with specialist terminology from selected branches of computer science, econometrics and mathematics	P6S_UK-O4.3
K_W14	knows basic principles of occupational health and safety	P6S_WK-O2.3
K_W15	has basic knowledge of the law and ethics related to scientific research activities and teaching, as well as to forms of individual entrepreneurship	P6S_WK-O2.3
K_W16	knows and understands basic concepts relating to protection of industrial property and copyright law; knows how to use patent information resources	P6S_WK-O2.2
<b>SKILLS</b>		
K_U01	is able to construct a line of logical reasoning and apply it to the studied branches of knowledge	P6S_UW-O3
K_U02	is able to interpret and explain functional dependencies expressed in a form of formulae, tables, graphs, diagrams and can apply them to practical issues	P6S_UW-O3
K_U03	is able to analyze simple economic phenomena and processes	P6S_UW-O3
K_U04	uses proper analysis tools to analyze economic phenomena relating to finance	P6S_WK-O2.3

K_U05	can use tools for recording basic economic operations	P6S_WK-O2.3
K_U06	is able to interpret economic laws	P6S_WK-O2.3
K_U07	knows basic terms from linear algebra and is able to use them to solve simple problems	P6S_UW-O3
K_U08	is able to solve linear equations systems	P6S_UW-O3
K_U09	is able to define functions and recurrence relations	P6S_UW-O3
K_U10	uses the concept of graph; is able to use previously studied properties and theorems to find parameters of a graph	P6S_UW-O3
K_U11	computes limits of sequences and functions; analyzes continuity of elementary functions; defines convergent series and is able to analyze convergence of elementary number series	P6S_UW-O3
K_U12	is able to use basic theorems and methods of differential and integral calculus, especially in optimization problems	P6S_UW-O3
K_U13	uses the concept of probability space; is able to give different examples of discrete and continuous probability distributions and discuss selected random experiments and mathematical models (including econometric ones) in which these distributions can be found	P6S_UW-O3
K_U14	can use basic theorems of probability and theorems of mathematical statistics in typical models	P6S_UW-O3
K_U15	can give an interpretation of generally used descriptions of model and empirical distributions	P6S_UW-O3
K_U16	is able to conduct statistical inference in typical statistical and econometric models, also with the use of computer tools	P6S_UW-O3
K_U17	using appropriate tools, is able to evaluate and compare bank deposits, as well as investment projects; is also able to create investment strategies and estimate his return and risk	P6S_UW-O3
K_U18	is able to calculate net single and installment premiums for life insurances	P6S_UW-O3
K_U19	can present a decision problem, especially one concerning managing an economic organization, in the form of a formal model and is able to use appropriate methods and algorithms for solving optimization problems	P6S_UW-O3
K_U20	recognizes problems, including practical issues, which can be solved with the use of algorithms and can specify such problems	P6S_UW-O3
K_U21	can define requirements concerning information systems and technologies and can select software which meets the needs of an organization	P6S_UW-O3
K_U22	is able to plan an information technology enterprise	P6S_UK-O4.3
K_U23	is able to analyze and design information technology systems using CASE tools	P6S_UW-O3
K_U24	uses with understanding the concept of a business process	P6S_UW-O3
K_U25	is able to construct and analyze an algorithm in accordance with specification, and write it in a selected programming language	P6S_UW-O3
K_U26	is able to compile, start and test an independently written computer program	P6S_UW-O3
K_U27	is able to explain the concept of n-layer architecture	P6S_UW-O3
K_U28	is able to construct a fragment of reality using complex data structures and simple object structures	P6S_UW-O3
K_U29	has the ability to normalize database relational schemas	P6S_UW-O3
K_U30	is able to read and construct database diagrams describing models of practical problems of intermediate complexity	P6S_UW-O3
K_U31	can create an internet document and place it on a server	P6S_UW-O3
K_U32	can perform an analysis of how net applications and protocols operate	P6S_UW-O3

K_U33	can properly format a text, prepare a presentation and use computer programmes for data analysis	P6S_UW-O3
K_U34	knows his interests and is able to broaden them; is able to make contacts with specialists within his discipline	P6S_UK-O4.2
K_U35	is able to use and present both in speech and writing methods of at least one of the following academic disciplines: information technology and its branches, discrete mathematics and graph theory, operations research (used in economics), mathematical statistics and its applications in economics	P6S_KK-O7.2
K_U36	has acquired English language proficiency in the field of computer science, econometrics and mathematics according to the requirements for level B2 of European Framework of Reference for Languages	P6S_UK-O4.3
<b>SOCIAL COMPETENCES</b>		
K_K01	understands the need for lifelong education	P6S_UU-O6
K_K02	is able to obtain information from specialist literature and the Internet independently, also in foreign languages	P6S_UO-O5.1
K_K03	is able to formulate precise questions in order to deepen his understanding of a given topic or to find missing elements of reasoning	P6S_UK-O4.1
K_K04	understands the significance of intellectual honesty, both in his own and in other people's activities, and is aware of the need to respect copyrights	P6S_WK-O2.2
K_K05	understands the importance of systematic work on long term projects	P6S_UO-O5.2
K_K06	understands the need to popularize selected branches of computer science and selected mathematical methods applied in economics	P6S_UK-O4 P6S_UO-O5.2
K_K07	understands social aspects of practical application of acquired knowledge and skills, and is aware of the responsibility relating to those aspects	P6S_KO-O8.1 P6S_KK-O7.2 P6S_KK-O7.1
K_K08	has the ability to deepen his knowledge and skills required for a project in progress	P6S_UO-O5.2
K_K09	can interact and work in a team	P6S_KR-O9 P6S_UO-O5.2