Course-specific competences of graduates of the master's programme Computer Science and Web Technologies:

- In-depth knowledge of various decision-making methods and simulation of decision models;
- Knowledge of software tools and methodologies for data analysis and simulation of discrete or continuous models;
- Mastery of research methods, procedures, processes and algorithms in the field of artificial intelligence and machine learning;
- Ability to solve research problems using machine learning methods;
- Understanding the theoretical foundations of text data mining, deep learning and computer vision;
- Ability to design and develop advanced algorithms for specific tasks determined by a problem;
- Ability to compare and select appropriate algorithms and tools for their implementation;
- Knowledge and ability to use a wide range of components required for comprehensive development of algorithms;
- Ability to interpret and model a given problem in the form of an algorithm;
- An advanced understanding of information security, preserving its value and ways of information misuse in real space and cyberspace;
- Familiarity with technologies and how to use them in the information society, and with the needs and reasons for the protection of information assets;
- Mastery of current international standards for the provision and evaluation of information security management systems;
- Knowledge of data warehouse architecture;

- Knowledge of documenting and analysing user requirements for the development of data warehouses;
- Knowledge of preparation of system and functional specifications of data warehouses;
- Knowledge of data warehouse modelling;
- Knowledge of data integration methods in data warehouses (filtering, cleaning, unification, metadata, ETL);
- Knowledge of user tools for data analytics and business intelligence;
- Knowledge of the requirements for the construction of distributed databases;
- Knowledge and basic use of the Hadoop framework for working with large data (Big Data);
- Ability to synthesize original ideas, concepts and solutions to specific problems from different disciplinary areas;
- Ability to work in a team;
- Understanding decision making supported by business intelligence;
- Ability to design and develop responsive user interfaces for web (and mobile) apps;
- Ability to compare and select appropriate tools and frameworks for advanced development of user interfaces for web apps;
- Advanced knowledge and understanding of the concepts of basic elements (CSS, HTML5, javascript) of web apps;
- Ability to independently develop complex software solutions;
- Knowledge and ability to use advanced software development tools;
- Understanding the concepts of parallel code execution and developing more complex software equipment based on parallel processing;
- Knowledge and understanding of the interaction between ICT and modern society;

- Ability to design user-oriented design projects;
- Ability to use tools and techniques to create a user experience;
- Ability to plan and analyse user experience;
- Ability to synthesize original ideas, concepts and solutions to specific problems;
- Knowledge and understanding of research processes and the ability for their complex analysis;
- Development of skills in the use of knowledge to solve theoretical or empirical research problems;
- Using and combining knowledge from different disciplinary fields;
- Ability to solve concrete project tasks using scientific methods and procedures;
- Knowledge of basic and advanced methods of data analysis and query in data;
- Mastery of research methods, procedures and processes;
- Ability to perform quantitative research and data analysis using appropriate statistical methods and models through using appropriate software;
- Ability to design and develop web apps on various platforms;
- Ability to compare and select appropriate tools and frameworks for web app development;
- Knowledge and ability to use a wide range of elements necessary for a comprehensive web app development (databases, web services, machine tools);
- Ability to interpret a given problem in the form of a web app;
- Ability to choose the use of ICT, tools and systems for designing information systems;
- Independent solving of demanding development, engineering and

organizational tasks in the field of software development;

- Knowledge of advanced combinatorial methods and their application in practice;
- Knowledge of the concepts of graph theory and the ability to use them when modelling real problems;
- Understanding of formal mathematical proofs and knowledge of different approaches to providing evidence.