

***Professional Foreign Language*** – The course is designed to develop professional language communication competencies within the context of IT and software systems studies. The course creates conditions for the development of academic and professional text comprehension, analysis, and production skills, as well as oral and intercultural communication. In study programmes delivered in Lithuanian, the course focuses on professional English (minimum B2 level according to the CEFR). In study programmes delivered in English, the course provides the foundations of Lithuanian as a foreign language (A1–A2 level according to the CEFR), supporting academic and professional integration in Lithuania. Digital and artificial intelligence (AI) tools are applied in the study process, promoting their responsible and critical use in professional communication.

***Mathematics*** - These topics of Mathematics are overviewed in theory and practice: linear algebra, analytic geometry, mathematical analysis (concept of function, finding limits of a sequence and a function, derivative of a function, indefinite and definite integrals), number series. After the math course a student will be able to: solve exercises for these topics, create a simple mathematical model and solve, interpret. A student will be able to find relevant information in mathematical publications and use it properly.

***Operating Systems*** - In this program, students learn about the internal composition of operating systems, internal computer processes, memory management, resource allocation, and file systems. Students are introduced to the purpose, composition and principles of operation of UNIX family operating systems. Students will learn about the internal composition of UNIX family operating systems, learn how to use basic commands, create command files, and be able to optimally configure them.

***Structured Programming*** - The course introduces the fundamentals of the C++ programming language, including conditional statements, loops, functions, structures, and classes. Students will learn to work with basic and complex data structures such as arrays and vectors. The course also covers commonly used algorithms and functions from the standard STL library. It is focused on developing practical programming skills.

***Fundamentals of Web Development*** - The course covers topics related to website development, including hypertext markup languages, the use of cascading style sheets, and client-side technologies for creating dynamic web pages. Special attention is focused on website design and testing. The course also focuses on the development of universal applications using web development technologies.

***Artificial Intelligence Tools*** - This course introduces students to AI tools and their application in academic and professional activities. During the course, students will learn how to use AI solutions in various engineering and software development tasks, including system development and analysis, preparation of technical documentation, generation and improvement of program code, test automation, and the creation of visual content. The course will also examine the principles of applying AI when working with information sources, automating tasks, and evaluating the reliability and quality of AI-generated results.

***Applied Research Methodology*** – This course covers key topics such as science, scientific research and its types, methods, benefits, approaches to literature source analysis, data analysis in research, methods

of data visualization, and management of bibliographic information. The course also reviews the specifics of writing scientific articles.

**Law** - The legal system is analyzed. Basic legal concepts are explained. Learn to use legal sources, collect legal information and apply legal norms. You learn to analyze legal situations, comment on them and provide conclusions, explain the rights and duties of the employee and the legal responsibility provided for by normative acts, know the rights of the user and defend them.

**Statistics** – The statistics subject consists of the following topics: descriptive statistics, probability theory, data analysis, statistical methods and data visualization. After completing the statistics subject, the student should be able to apply in practice statistical data collection, systematization and analysis methods. The course focuses on the practical application of statistics, using software (e.g. MS Excel, R, SPSS, Python, etc.).

**Cybersecurity and Information Protection** – Cyber security and information security management methodologies and risk analysis. Planning for the protection of recording unforeseen events. Overview of logical and physical layer security criteria. Organizational, technical requirements and good practices for ensuring cybersecurity and information protection in organizations. Implementation and technical measures of TIS2 requirements. Operating system security measures. Legal and ethical issues of cyber and information security. Cyber security trends.

**Information Systems** – In this course, students are introduced to the principles of applying and using information systems, as well as the classification and structure of information systems. The course defines life cycles and their application. Methods of domain analysis and modeling are applied. Functional and non-functional requirements for information systems are formulated.

**Object-Oriented Programming** – Object-oriented programming is one of the fastest development trends. Use of the object-oriented programming let us make process of the programming universal and very flexible. Such programming is used in creation of complex system design. Students achieve skills in module, data structures, file input/output programming considering class design principles and technology closely related to the object-oriented programming.

**Non-Relational Databases** – Non-relational databases are very efficient in large data processing. This subject is to give knowledge in designing solutions to work with heavy load of data.

**Object-Oriented Programming Practice** - Object-oriented programming is one of the fastest development trends. Use of the object-oriented programming let us make process of the programming universal and very flexible. Such programming is used in creation of complex system design. Students achieve skills in module, data structures, file input/output programming considering class design principles and technology closely related to the object-oriented programming.

**Economics** – While studying the theory of economics students will reach the aims of program and knowledge and abilities for the work in the fields related with economics, to develop the broad erudition and creative reasoning, to develop ability to maintain the professional qualification in the life time lasting learning.

***Software Testing*** – Testing of application systems allows to assess the quality of application systems and their reliability. This course examines testing techniques and tools that facilitate the testing of software systems.

***Software Engineering*** - In the first part of the subject a general introduction to software engineering will be provided. Important topics will be learned: software process and agile methods, essential software development activities, from initial software specification through to system evolution. Also, software process models, agile methods, plan-driven development, requirement engineering will be learned. At the second part of the course architectural design decision principles and implementations, software testing, evolution processes and issues will be learned.