

| Programos aprašas            |                                                        |
|------------------------------|--------------------------------------------------------|
| State code                   | 6531BX028                                              |
| Faculty                      | <a href="#">Faculty of Electronics and Informatics</a> |
| Study field                  | Informatics                                            |
| Qualification                | Professional Bachelor of Computing                     |
| Form and duration of studies | Full-time studies, 3.5 years                           |
| Credits                      | 210                                                    |
| Study plans                  | Degree Course 2022                                     |

### Career Prospects

Graduates will be able to work in IT market in the field of software systems development: design, programming, testing and support.

### Learning Outcomes

You will be able to:

- explain the fundamental facts, concepts, theories, and mathematical methods related to the computer performance, computer hardware and software, their characteristics and possibilities of practical application, computer communication and applicable solutions associated with the important events in the past, present and predicted trends in the future of computing science;
- explain the principles of algorithm design and analysis, programming paradigms, computer programming languages and technologies, the principles of human-computer interaction, and traditional phases of the Software Development Life Cycle, and software development and maintenance methods;
- explain how business, industrial, economic and social context interacts with professional training activity in accordance with ethical and legal requirements such as data protection, intellectual property rights, agreements, product safety, responsibilities and other associated issues;
- apply the study subject knowledge of software engineering field of study for developing safe products which meet specific criteria of computing science applications to solve the problems related to the field of professional activity;
- explain the specification for the program systems, design, testing and documentation, program system processes, models and methods;
- describe the problem related to the field of professional activity in terms of the database systems, internet technologies, smart devices programming and prepare the required data and information from various sources to solve the specific problem related to the field of professional activity;
- analyze and evaluate data and information necessary to solve the specific problem of the professional activity related to the database systems, internet technologies, smart devices programming and justify the solutions with argumentative conclusions;

- apply the Software Development Life Cycle models, software development, maintenance and project management methods, standards, development environments and tools, programming paradigms and algorithms in standard software application projects;
- select the right software development and maintenance tools implemented in the Software Development Life Cycle and project management;
- design software architecture, components, graphical user interface and testing programs using functional and non-functional requirements applied for the system;
- prepare specification, project and other documentation necessary to create, deploy, develop, use and administer software product or service;
- realize software product or service for solving the specific problem related to field of professional activity using functional and non-functional requirements applied for software;
- test the quality of software, its separate components and graphical user interface;
- professionally communicate in state and at least in one foreign language with professional audience;
- work in teams in accordance with professional, ethical behaviour and social responsibility principles and rules;
- self-study and work seeking for personal and professional lifelong development;
- demonstrate creativity for solving the tasks and problems related to the professional activity.

**Full-time studies**  
*Degree Course 2022*

| <b>1st semester (30 credits)</b>               |                |                     |
|------------------------------------------------|----------------|---------------------|
| <i>Subject</i>                                 | <i>Credits</i> | <i>Evaluation*</i>  |
| Professional English                           | 6              | E                   |
| Speciality Language                            | 3              | P                   |
| Mathematics                                    | 6              | E                   |
| Operating Systems                              | 6              | E                   |
| Structured Programming                         | 6              | E                   |
| Introduction to Informatics                    | 3              | P                   |
| <b>2nd semester (30 credits)</b>               |                |                     |
| <i>Subject</i>                                 | <i>Credits</i> | <i>Evaluation *</i> |
| Environmental and Human Safety                 | 3              | P                   |
| Probability Theory and Mathematical Statistics | 3              | P                   |
| Algorithms and Data Structures                 | 6              | E                   |
| Discrete Mathematics                           | 3              | E                   |
| Human-Computer Interaction Design              | 6              | E                   |
| Computer Graphics                              | 6              | E                   |
| First Programming Practice                     | 3              | P                   |
| <b>3rd semester (30 credits)</b>               |                |                     |
| <i>Subject</i>                                 | <i>Credits</i> | <i>Evaluation *</i> |
| Methods of Computation and Optimization        | 6              | E                   |
| Database Design                                | 6              | E                   |
| Information Systems                            | 3              | E                   |
| Law                                            | 3              | P                   |

|                                                 |                |                     |
|-------------------------------------------------|----------------|---------------------|
| Object-Oriented Programming                     | 6              | E                   |
| Management                                      | 3              | P                   |
| Second Programming Practice                     | 3              | P                   |
| <b>4th semester (30 credits)</b>                |                |                     |
| <i>Subject</i>                                  | <i>Credits</i> | <i>Evaluation *</i> |
| Sociology                                       | 3              | P                   |
| Business Management Systems                     | 3              | P                   |
| Computers and Networks                          | 6              | E                   |
| Multithreaded Programming                       | 3              | E                   |
| Web Services                                    | 6              | E                   |
| Information Security                            | 6              | E                   |
| Database Practice                               | 3              | P                   |
| <b>5th semester (27 credits)</b>                |                |                     |
| <i>Subject</i>                                  | <i>Credits</i> | <i>Evaluation *</i> |
| Economics                                       | 3              | P                   |
| Software Testing                                | 3              | P                   |
| Software Engineering                            | 3              | E                   |
| Optional subject 1**                            | 3              | P                   |
| Optional subject 2**                            | 3              | P                   |
| <b>Specialization: Database Systems</b>         |                |                     |
| Database Management Systems                     | 6              | E                   |
| Data Mining                                     | 6              | E                   |
| <b>Specialization: Internet Technologies</b>    |                |                     |
| Client-Side Web Development                     | 6              | E                   |
| Server-Side Web Development                     | 6              | E                   |
| <b>Specialization: Smart Device Programming</b> |                |                     |
| Hybrid Mobile Applications                      | 6              | E                   |
| Native Mobile Applications                      | 6              | E                   |
| <b>6th semester (33 credits)</b>                |                |                     |
| <i>Subject</i>                                  | <i>Credits</i> | <i>Evaluation *</i> |
| Artificial Intelligence                         | 6              | E                   |
| Software Development Management                 | 3              | E                   |
| Professional Practice                           | 12             | P                   |
| Optional subject 3**                            | 3              | P                   |
| Optional subject 4**                            | 3              | P                   |
| <b>Specialization: Database Systems</b>         |                |                     |
| Database Servers Management                     | 3              | E                   |
| Non-Relational Databases                        | 3              | E                   |
| <b>Specialization: Internet Technologies</b>    |                |                     |
| Web Security                                    | 3              | E                   |
| Website Optimization for Search Engines         | 3              | E                   |
| <b>Specialization: Smart Device Programming</b> |                |                     |
| Internet of Things                              | 3              | E                   |
| Smart Device Sensors Programming                | 3              | E                   |

| 7th semester (30 credits) |         |              |
|---------------------------|---------|--------------|
| Subject                   | Credits | Evaluation * |
| Final Practice            | 15      | P            |
| Final Project             | 15      | Defense      |

\* *E – exam, P – project*

\*\**Optional subjects are freely selectable subjects from the list of predefined subjects.*