Faculty of Informatics – specialties

Undergraduate studies – specialities

Programming: The central goal of this specialization at the undergraduate level is to familiarize students with major programming environments and tools. As a result, students acquire the skills and expertise necessary for advanced and effective application of the C++ programming language and understand this language's object-oriented nature. Familiar with the polymorphism principle in object-oriented programming, the students know how to apply it to base addressing modes and virtual functions use. Familiar with the Windows operating system and the principles of creating its application programs, the students also understand what the user's graphic interface is and know how to create it for particular applications. They will also have mastered state-of-the-art techniques of fast program writing aided by ultra-modern tools. The students learn through a hands-on approach on how to create web applications, design local and remote databases using the SQL language, and create single-layer and multilayered database applications for Windows.

Computer Network Administrator / Computer Networks: The specialisation focuses on a wide range of aspects in the area of information and communications technology. Students may choose among topics referring to the infrastructure, devices, protection, configuration and design of computer networks or propose their own topic. As part of the specialisation, students will have the opportunity to familiarise themselves with devices (Cisco, Linksys, D-Link, Vanguard). Gaining practical skills related to the operation and configuration of equipment is particularly emphasised. The course tutor will make efforts so that students obtain a higher technical degree on the basis of the prepared topic. Also, the creation of a group (maximum of two people) working on a particularly developed topic may be possible.

Computer Graphics: This specialization program aims to familiarize students with different types of media and their diverse applications. Teaching students how to integrate graphics, text, sound, and animation, we enable them to develop the practical skills necessary for creating effective multimedia presentations. The specialization prepares graduates for work as computer graphics designers and as multimedia specialists in marketing companies.

Website Design: Specialization is to prepare students to design and create web pages. Students, in particular, will learn the structure and principles of the web pages, standards, specifications, code interpretations by browsers and web development tools. In addition, students will learn the use of tags, sections of documents, graphics on the page, hyperlinks and page positioning.

Security of Computer Systems: As part of this specialization, students learn methods to protect information, software and other resources. Several Network and hardware issues are considered (location, access to resources, fire protection and storage procedures) as well as software security problems (operating systems, database management systems, anti-virus software). Graduates of this specialization know exactly practical issues of cryptography, data protection methods from copying, modification and unauthorized access, methods of electronic workflow, signature and verification, SSL, TCP / IP, HTTP and HTTPS protocols, firewall and DMZ configuration, WWW, FTP, DNS and email servers software.

Databases: The main goal of this specialization program is to familiarize students with practical issues involved in analyzing, designing and building databases. In addition, the students acquire skills and expertise in the fields of practical applications of the SQL language, they learn how to create computer applications working with databases, and – last but not least – how to make the most of the database

ATINS

Faculty of Informatics

Faculty of Automatics and Robotics

Faculty of Bioinformatics

Language Courses/Learning Agreement

and programming environments selected while working on their diploma thesis (including, for example, MySQL, Oracle, MS SQL Server, PostgreSQL, PHP, Visual Studio, and others).

Software Tester: A student of the programme acquires expertise relating to software testing; software quality assurance; test design techniques; test process management; test process documentation. A graduate of the programme has skills relating to effective test case design, implementation, and execution; analyses of functional and non-functional requirements for defects; test plan development; automation cost-effectiveness assessment; organization testing; automation of automatable tests; effective communication with project partners.

Computer Game Programming: A student of the programme acquires expertise relating to: C++ programming; support of graphic and sound programs; computer networks; support of input/output devices; video stream processing. A graduate of the programme has skills relating to: creative and conscious participation in each stage of computer game development; game script development; graphic design development; game and application sound development; game programming on the basis of a selected engine; game testing; project documentation preparation.

IT Project Management: A student of the programme acquires expertise relating to: project management and practical implementation methodologies; defining projects and their scopes, scheduling work, and managing budgets; managing risks; managing quality. A graduate of the programme has skills relating to: using specialist IT tools in project management; controlling and monitoring work progress in projects; project team management skills; negotiating.

Programming Mobile Devices: A student of the programme acquires expertise relating to designing GUIs; software management methods; mobile platform programming techniques. A graduate of the programme has skills relating to software engineering; mobile solution implementation; software integration and testing.

Graduate studies – specialities

Programming: This is a specialization addressed to students interested in acquiring practical skills in the fields of software engineering and broadly-conceived computer science. The curriculum focuses on creating practical computer solutions based on the latest programming languages and technologies. Students will also sharpen their object-oriented programming skills, broaden their knowledge of advanced database systems, and practice building web applications or programming computer games. In addition, they will learn about computer network security and managing computer projects involving teamwork. The program's graduates will have acquired substantial skills in creating, developing, and implementing computer systems, which will secure their good standing on the increasingly competitive labour market.

Computer Network Administrator: This specialisation is intended for people who deal with or intend to deal with network infrastructure: design, configuration and implementation, as well as the use of IT methods and tools in telecommunications. Students learn about modelling and analysis of information systems, information network technologies, trends in modern broadband networks, security and reliability of information and information networks, design of distributed systems, backbone networks, telecommunications networks and systems, and design of ICT services. The strength of the specialisation are richly equipped laboratories (Cisco, Fluke), which allow expanding your skills.

Computer Graphics: This specialization program aims to familiarize students with different types of media and their diverse applications by teaching them how to integrate graphics, text, sound, and animation, thus enabling them to develop practical skills currently much sought-for in the industrial and service sectors. This graduate program produces experts with practical know-how and solid theoretical knowledge in the fields of cutting-edge computer technology used for generating images and data visualization (also in non-technological fields such as medicine or biology). The curriculum focuses on computer-generated processing and analysis of digital images, digital image projection, building web applications, generating high-quality images of 2- and 3-dimensional objects on the computer screen, animation, computer games programming, and creating advanced CAD projects. Our forte is well-equipped, ultra-modern computer labs.

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