

Profile of educational program
«Information Systems and Technologies»

General information	
Official name of the educational program	Information Systems and Technologies
Specialty	126 Information Systems and Technologies
Field of knowledge	12 Information Technologies
Degree of higher education and qualification name in the original language	Bachelor, Bachelor of Information Systems and Technologies
Type of diploma and volume of study program	Bachelor's degree, single, 240 ECTS credits, duration of training 3 years 10 months
Accreditation	-
Cycle / level	The first (bachelor) level NQF of Ukraine – 7 level FQ-EHEA – first cycle EQF-LLL – 6 level
Requirements for the applicants level of education	Full general secondary education
Teaching language	Ukrainian
Duration of the educational program	5 years
Purpose of educational program	
	Formation of a highly qualified specialist in the field of information systems and technologies, algorithmizing and programming of a wide range of tasks related to the application of information systems design technology, creating and administrating databases and expert systems, innovative approaches in the field of information technologies, mathematical modeling and optimization of information processes, intellectual analysis, visualization and interpretation of data, modeling of project management processes.
Characteristics of educational program	
Subject area	<p><i>Objects of study and activity:</i> theoretical and methodological foundations and tools for creating and using information technologies and systems in various fields of human activity, national economy and production; evaluation criteria and methods for ensuring quality, reliability, fault tolerance, survivability of information technologies and systems; patterns of development of information communications and the development of theoretical and applied foundations for the construction and implementation of intelligent information technologies.</p> <p><i>Learning objectives:</i> formation and development of general and professional competences in information systems and technologies that contribute to the social stability and mobility of the graduate in the labor market; higher education for the development, implementation and research of information systems and technologies.</p> <p><i>The theoretical content of the subject area</i> includes concepts and principles (of higher and applied mathematics, programming, computer and mathematical modeling, data processing, system analysis and design, information management, system integration and administration, IT project management, enterprise architecture and IT infrastructure) that</p>

	<p>ensure the acquisition of relevant competencies by the graduate.</p> <p>The applicant for higher education for practical use must master the methods of fundamental and applied sciences, mathematical and computer modeling, professional applications, modern programming languages (including specialized), methods, methodologies, techniques and approaches of related industries that use IST.</p> <p><i>Tools and equipment:</i> computer technology, instrumentation, software and hardware, networking equipment, specialty software, modern programming languages, and more.</p>
Educational program orientation	Educational and professional
Main focus of the educational program and specialization	<p>Special education in the field of information technologies, specialty of information systems and technologies.</p> <p><i>Keywords:</i> information, system, technology, computer, program, programming, model, modeling, object-oriented programming, databases, knowledge bases</p>
Program features	The educational program provides the acquisition of theoretical knowledge and practical skills in information systems and technologies
Suitability of graduates for employment and further studying	
Suitability for employment	<p>Professional activity as a specialist in the development of mathematical, information and software information systems, in the field of information technology, as well as the administrator of databases and systems.</p> <p>Graduates can work in professions according to the current edition of the National Classifier of Ukraine: Classifier of professions (DK 003:2010):</p> <ul style="list-style-type: none"> Developer of computer systems Software developers Technical experts in the field of computer engineering Specialist in information technology Infocommunication Specialist
Further learning	Opportunity to study in the program of the second (master's) level of higher education. Acquiring additional qualifications in the system of postgraduate education.
Teaching and Assessment	
Teaching and learning	Student-centered training, lectures, practical exercises, independent work using textbooks, tutorials, consultations, design work, preparation of the bachelor qualification work
Assessment	Oral and written interviews, test assignments, graphic works, coursework and projects, practice reports, oral and written exams, differentiated credits, defense of the bachelor's qualification (diploma).
Program learning outcomes	
Program learning outcomes, defined by the standard	<p>PO 1. Know linear and vector algebra, differential and integral calculus, theory of functions of several variables, theory of series, differential equations for the function of one and several variables, operational calculus, theory of probability and mathematical statistics to the extent necessary for the development and use of information systems, technologies and information communications, services and infrastructure of the organization.</p> <p>PO 2. Apply the knowledge of fundamental and natural sciences, system analysis and modeling technologies, standard algorithms and discrete analysis in solving design problems and the use of information systems</p>

	<p>and technologies.</p> <p>PO 3. Use basic knowledge of informatics and modern information systems and technologies, programming skills, safe working technologies in computer networks, methods for creating databases and Internet resources, technologies for developing algorithms and computer programs in high-level languages by means of object-oriented programming for solving design problems and using the information systems and technologies.</p> <p>PO 4. Conduct a system analysis of design objects and justify the choice of structure, algorithms and methods of information transfer in information systems and technologies.</p> <p>PO 5. Justify the choice of software and hardware for creating information systems and technologies based on an analysis of their properties, purpose and technical characteristics, taking into account system requirements and operating conditions: have the skills to configure and test software and hardware of information systems and technologies.</p> <p>PO 6. Demonstrate knowledge of the modern level of information systems technologies, practical programming skills and the use of applied and specialized computer systems and environments for the purpose of their implementation in professional activities.</p> <p>PO 7. Substantiate the choice of technical structure and develop appropriate software, which is part of information systems and technologies.</p> <p>PO 8. Apply the rules for registration of design materials of information systems and technologies, know the composition and sequence of design work, taking into account the requirements of the relevant regulatory documents for implementation in professional activities.</p> <p>PO 9. Carry out a system analysis of the enterprise architecture and its IT infrastructure, develop and improve its elemental base and structure.</p> <p>PO 10. Understand and take into account social, environmental, ethical, economic aspects, labor protection requirements, industrial sanitation, fire safety and existing state and foreign standards in the formation of technical tasks and decisions.</p> <p>PO 11. Demonstrate the ability to design a feasibility study for the development of information systems and technologies and be able to evaluate the economic efficiency of their implementation.</p>
<p>Program Learning Outcomes, defined by a higher education institution</p>	<p>PO 12. Communicate effectively in a foreign language in a business environment.</p> <p>PO 13. Know physics, electrical engineering, electronics and circuitry, microprocessor technology at the level necessary to solve typical problems and problems of automation.</p> <p>PO 14. Be able to apply system analysis, modeling, identification and numerical methods to the development of mathematical and simulation models of elements and automation systems in general, to analyze the quality of their operation using the latest computer technologies.</p> <p>PO 15. Be able to take into account social, environmental, ethical, economic aspects, requirements of occupational safety, industrial sanitation and fire safety when designing technical solutions. Be able to use different types and forms of motor activity for active rest and leading a healthy lifestyle.</p> <p>PO 16. Apply language, speech, lingvosocial cultural and communication skills for effective communication in a foreign language.</p> <p>PO 17. Use normative and legal acts regulating professional activity</p>

	<p>PO 18. Analyze the role and importance of the modern city in the context of global and local challenges</p> <p>PO 19. Apply the basic principles of political science in the resolution of professional problems</p> <p>PO 20. Substantiate moral principles of social and professional relations on the basis of categorical analysis of ethical theories; to form a conscious sense of responsibility and moral self-improvement; make compromise decisions when performing joint activities through ethical reflection; to analyze artistic sources in the context of contemporary ethical theories; determine the artistic features of the cultural development of European civilization; the ability to express and substantiate their position on issues of value to the artistic heritage of mankind.</p> <p>PO 21 Analyze the processes of legal and market regulation of socio-economic labor relations.</p> <p>PO 22. Be reasonable to use the basic principles and rules of logical thinking in scientific knowledge and professional activity.</p> <p>PO 23. Analyze the peculiarities of cultural processes in the modern world; to make comparative characteristics of the main cultural centers of the modern world; analyze the patterns of cultural development of mankind; draw historical parallels between the contemporary cultural situation and the historical past.</p> <p>PO 24. Perform professional communication: create communication products, analyze communication activities; adequately respond to criticism, generate and argue new ideas; exercise communicative influence on people by encouraging them to act; to express their own thoughts; identify, apply information and communication technologies; to develop skills between personal interaction in a team.</p> <p>PO 25. Apply high-performance computing tools based on cloud services and technologies, parallel computing in the development and operation of distributed systems.</p> <p>PO 26. Be able to develop front-end and back-end applications using XML, JavaScript and DOM technologies.</p> <p>PO 27. Identify and classify types of information security threats, including network security, and implement critical data protection techniques.</p>
Resource support for the implementation of the program	
Staffing	<p>The quality level of professional training of masters is provided by qualified scientific and pedagogical staff of the department, which includes doctors and candidates of sciences, professors, associate professors. Two teachers have a certificate of proficiency in English at the level of B-2. All teachers of the department have powerful practical experience in the field of information technology.</p>
Material and technical support	<p>The educational process is fully provided by the auditorium, administrative and auxiliary premises. The specialized computer laboratories of the department have modern equipment and software (ESET antivirus software, Microsoft Office Professional, Microsoft Visual-studio-2010-express, Oracle package, Professional Project Management, FireFox, FireBug, Google Chrome, Opera, Internet Explorer, Geany , NetBeans, GIMP, Apache, PHP), the ability to access the Internet.</p> <p>For lectures, an audience with multimedia equipment (room 226 of the Central Building) is used. For the practical training, 4 specialized</p>

	laboratories are used: "Computer and Microprocessor Systems and Devices Laboratory", audience 218a of the Central Building, "Information Systems Modeling Laboratory", audience 218b of the Central Building, "Corporate Network Technologies Laboratory", audience 218c of the Central Building, "Laboratory" of things ", the audience is 225 of the Central Building.
Information and educational-methodological support	All educational components of the computer science education program are provided with the following teaching materials: textbooks; tutorials; lecture notes; methodical instructions and recommendations; individual tasks; collections of situational tasks (cases); examples of solving or completing typical tasks; computer presentations; illustrative materials; resource directories and more. All teaching materials are available for students in the reading rooms of the Scientific Library http://library.kname.edu.ua/index.php/en/ , in the Information Room equipped with computers with access to the University's Internet and LAN , in the digital repository http://eprints.kname.edu.ua , on the Distance Learning Center portal http://cdo.kname.edu.ua/ .
Academic mobility	
National Credit Mobility	In accordance with the Regulations on Academic Mobility of students, graduate students, doctoral students, scientific-pedagogical and scientific workers of O.M. Beketov NUUE.
International credit mobility	O.M. Beketov NUUE has 5 existing agreements under Erasmus + International Credit Mobility with the following foreign universities, namely: 1) Middle Eastern Technical University, Ankara, Turkey (METU), 2) Aristotle University, Thessaloniki, Greece, 3) University Nova Gorica, Nova Gorica, Slovenia, 4) Estonian University of Natural Sciences, Tartu, Estonia, 5) Lodz Technical University (Lodz, Poland).
Education of foreign applicants	According to the Rules of admission to study at O.M. Beketov NUUE.