3. Educational programme.

Information Systems and Technologies (Master's Degree). Director of the Master's degree programme - Tomashevska T.V., PhD in Technical Sciences, Associate Professor of the Department of Computer Science and Information Systems

3.1. Profile of the educational programme "Information Systems and Technologies" in the subject area 126 "Information Systems and Technologies"

1 – Загальна інформація 1 – General information	
Full name of the HEI and structural unit	State University of Trade and Economics Faculty of Information Technologies Department of Computer Science and Information Systems
Academic degree and qualification title in the original language	Master's degree Subject Area "Information Systems and Technologies"
Educational programme official title	Information Systems and Technologies
Compliance with the higher education standard of the Ministry of Education and Science of Ukraine	Corresponds to the Higher Education Standard of the Ministry of Education and Science of Ukraine
Type of diploma and educational programme scope	Master's degree, unitary, 90 ECTS credits, training period 1 year 4 months
Accreditation availability	Initial accreditation is scheduled for 2025
Cycle/Level	NQF of Ukraine – Level 7, FQ-EHEA – Second Cycle, EQF-LLL – Level 7
Prerequisites	Bachelor's degree (or educational qualification level of a specialist)
Language(s) of training	Ukrainian
Education Programme validity period	01.07.2026
Internet address for permanent placement of the educational programme description	https://knute.edu.ua
2– The Purpose of the educational programme	
Training, competitive in the labor market, highly qualified specialists who have a system of knowledge in the design, development, implementation and maintenance of modern information systems and technologies, know modern scientific achievements in the field of information	

technology, are able to formulate and solve research problems and summarize their results in their professional activities using fundamental and applied methods of information technology.	
3 - Characteristics of the educational programme	
Subject Area Description	**Object(s) of study and/or activity (phenomena, events or problems studied):** information technology; principles, methods and means of creation and maintenance for information systems. **Learning objectives:** formation and development of a set of knowledge, skills and abilities necessary to solve research and innovation problems in the field of information systems and technologies (ICT). **Theoretical content of the subject area:** ideas, principles and concepts of creation and functioning of organizational and technical systems and technologies of information processing with the help of hardware and software. **Methods, techniques and technologies:** methods, techniques, technologies of information, mathematical and computer modelling, system analysis, information security, design, organizational and management activities. **Tools and equipment:** computer equipment, hardware, software and hardware complexes, network equipment.
Educational programme Orientation	Educational, professional, fundamental, applied. General higher education of the second (master) cycle in the field of information technology in the subject area "Information Systems and Technologies". The emphasis of the educational programme is on the training of specialists capable of solving complex problems related to the design, development, software implementation and maintenance of information systems and technologies.
The main focus of the educational programme	Special education in the field of information technology with in-depth study of fundamental and applied methods related to modelling, design, development, software implementation and maintenance of information systems and technologies based on distributed databases and knowledge using intelligent mechanisms for data processing and analysis (including Big Data). Key words: information systems and technologies, computer-aided design, Agile management of IT projects, data analysis technologies, Big Data technologies, distributed databases and knowledge, data processing intelligent methods.
Educational programme features	Availability of a variable component of professionally-oriented courses on information systems and technologies allows students to master theoretical knowledge and practical skills of business planning, Web analytics, applied system analysis, functional and logical programming, etc. Internship in research state institutions, enterprises and organizations. A feature of the EP is its content with a certain sequence of educational components, which ensures the formation of competitive advantages in the modern labour market

	in the field of IT due to a comprehensive package of modern knowledge and skills, which is formed through the integration of hardware and software into the EP and the list of compulsory courses related to the study of computer modelling and information systems design technologies, intelligent technologies processing and analysis of data, including Big Data, technologies for creating distributed databases and knowledge and IT projects management, scientific research features in the field of IT.
4 –Graduates employability and suitability for further learning	
Employability	Job titles according to the National Classifier of Ukraine: Classifier of Professions (DK 003: 2010) 3121.2 Information Technology Specialist; 3121.2 Specialist in the development of computer programs; 213 Professionals in the field of computing (computerization); 2131 Professionals in the field of computing systems; 2131.2 Developers of computing systems; 2132 Professionals in the field of programming. 2131.1 Researchers (Computer Systems); 2132.1 Researchers (programming); 2132.2 Developers of computer programs; 2310.2 Other teachers of higher education institutions; 2321 Teachers of vocational (vocational and technical) education institutions; 2322 Teachers of institutions of professional pre-higher education; 2310.2 Other teachers of universities and higher education institutions.
Graduates' academic rights	Education at the third (PhD) cycle of higher education. Acquisition of additional qualifications in the adult education system.
Employment of graduates	Professional activity as an expert in the design and development of mathematical, information and software information systems and technologies.
5 – Teaching and Assessment	
Teaching and Learning	Problem-based learning, self-learning, learning through practical training.
Assessment	Current control, written exams, thesis public defense. Assessment is carried out in accordance with the "Regulations on the assessment of student and post-graduate students' learning outcomes at SUTE", "Regulations on the organization of the educational process of students"
6 – Programme competences	
Integral Competence	Abilities to solve research and innovation problems in the field of information systems and technologies.
General Competences	GC01. Abilities to abstract thinking, analysis, and synthesis. GC02. Abilities to communicate in a foreign language.

	GC03. Abilities to communicate with representatives of other professional groups of different levels (with experts from other fields of study/types of economic activity). GC04. Abilities to develop and manage projects. GC05. Abilities to evaluate and ensure the quality of work performed.
Subject Competences	SC01. Abilities to develop and apply ICTs necessary to solve strategic and current problems. SC02. Abilities to formulate requirements for the life cycle stages of service-oriented information systems. SC03. Abilities to design information systems considering the specifics of their purpose, incomplete/insufficient information and conflicting requirements. SC04. Abilities to develop mathematical, information and computer models of objects and processes of informatization. SC05. Abilities to use modern data analysis technologies to optimize processes in information systems. SC06. Abilities to manage information risks based on the information security concept. SC07. Develop and implement innovative projects in the field of ICT.
7 – Programme learning outcomes	
	PLO01. Find the necessary information in scientific and technical literature, databases, and other sources, analyze and evaluate this information. PLO02. To communicate fluently in the state and foreign languages in the scientific, industrial and socio-social scopes of activity. PLO03 Make effective decisions on the problems of information infrastructure development, creation and application of ICT. PLO04. Manage the processes of development, implementation and operation in the field of ICT, which are complex, unpredictable and require new strategic and team approaches. PLO05. Determine the requirements for ICT based on the analysis of business processes and the analysis of the stakeholders' needs, develop terms of reference. PLO06. Justify the choice of technical and software solutions, considering their interaction and potential impact on the solution of organizational problems, organize their implementation and use. PLO07. Make a reasonable choice of projects solutions and design a service-oriented information architecture for an enterprise (institution, organization, etc.). PLO08. To develop models of information processes and systems of various classes, to use methods of modelling, formalization, algorithmizing and implementation of models using modern computer tools.

	PLO09. Develop and use data warehouses, perform data analysis to support decision-making. PLO10. Ensure high-quality cyber protection of ICT, plan, organize, implement and control the functioning of information security systems. PLO11. Solve the problems of digital transformation in new or unknown environments on the basis of specialized conceptual knowledge, including modern scientific achievements in the field of information technology, research and integration of knowledge from various fields.
8 – Resource support for programme implementation	
Staffing	The implementation of the educational program is provided by teachers who have the scientific degrees of PhD and Doctor of sciences. It is possible for foreign specialists and practitioners to participate in the teaching of professionally oriented courses.
Material and technical support	The basis of material and technical support is specialized computer laboratories with modern hardware and software resources that provide high-quality training of masters in the educational program "Information Systems and Technologies". Students are fully provided with material resources for learning and research. At their service: - more than 30 thousand. m2 of educational buildings; - hostels; - 470 seats in the reading rooms of SUTE, including the multimedia library of SUTE, where access to scholar's databases SCOPUS, Web of Science is provided; - 2000 PC workstations with Internet access + WIFI. All computer equipment is provided with basic software, special software is installed on computers in the laboratories of the departments, which is necessary for conducting classes and performing tasks by students; - distance learning laboratory, which houses 966 educational courses; - electronic platform for student communication based on Microsoft Office 365, etc.
Informational, educational and methodological support	Full provision of educational and methodological complexes of courses and other types of educational and methodological materials. Documents regulating the procedures for admission and training at SUTE are available on the official website. Open access of higher education students to information and educational and methodological resources through information systems for managing the educational process and other web services:

	- distance learning system MOODLE (966 educational courses, provides independent and individual training, control), - availability of free access to the Internet and e-mail; - information system for managing the educational process of SUTE "MIA Osvita"; - the system of management of the library fund - almost 1.5 mln. titles of educational and scientific literature in the SUTE library; - electronic document management system "OPTiMA – WorkFlow"; - corporate information environment in the form of a "personal account" of the user of the SUTE web portal. Ensuring the publicity of information about educational programs, degrees of higher education and qualifications: implementation of SUTE's information policy of publication on the official website of SUTE of ECTS information packages, educational programmes, class schedules, as well as all components of the educational process, which are subject to publication in accordance with the Law of Ukraine "On Higher Education"; Ensuring an effective system for preventing and detecting academic plagiarism in the scientific works of SUTE employees, higher education students (checking for plagiarism of all final thesis, publications, disclosure of the research texts on the official website of SUTE), compliance with the Code of Ethics of the Scientist of Ukraine.
9 – Academic mobility	
National Credit Mobility	National credit mobility is carried out in accordance with the concluded agreements on academic mobility.
International Credit Mobility	International credit mobility is implemented within the framework of cooperation agreements between SUTE and higher education institutions in France, Great Britain, Poland, Germany, within the framework of which partner exchange and training are carried out. Training in the direction of KA1 with obtaining credits at universities of the Erasmus+ member countries.
Training of foreign students for higher education	Foreign students of higher education are guaranteed all rights and freedoms, in accordance with the current legislation of Ukraine and the Statute of the University. The training of foreign students is carried out on general terms with additional language training.

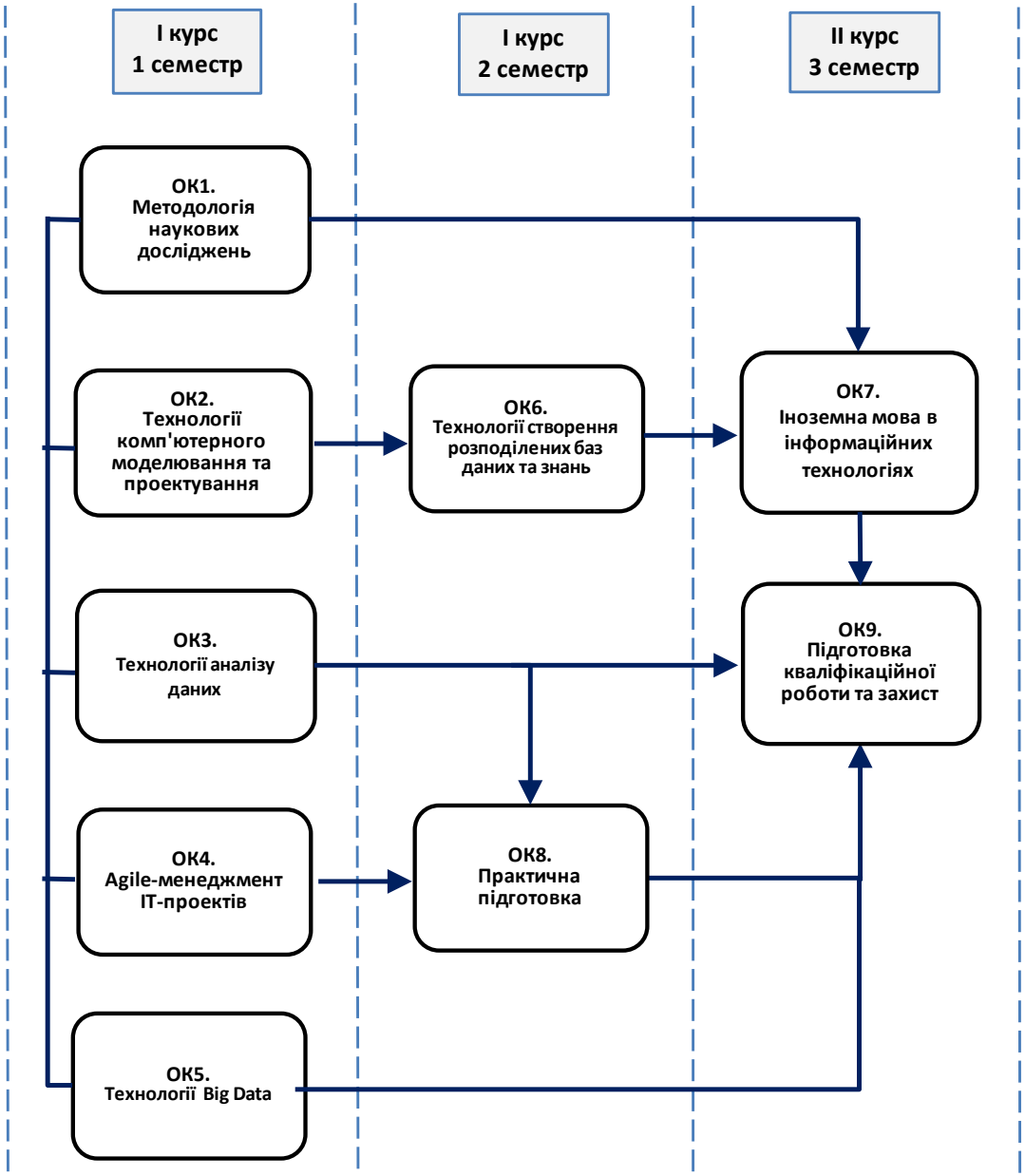
3.2. List of the educational programme components and their logical sequence

3.2.1. List of Educational programme components

N/A code	Components of the educational programme (academic courses, course projects (works), internships, qualification exam, Master thesis public defence)	Number of credits
1	2	3
Educational Programme Compulsory components		
CC 1.	Research Methodology	6
CC 2.	Computer Simulation and Design Technologies	6
CC 3.	Data Analysis Technologies	6
CC 4.	Agile for IT projects management	6
CC 5.	Big Data Technologies	6
CC 6.	Technologies for creating distributed databases and knowledge	7,5
CC 7.	Foreign Language in Information Technology	6
CC 8.	Internship	10,5
CC 9.	Preparation of Master thesis public defence	12
Compulsory components total scope:		**66**
Educational Programme Elective Components		
EC 1.	Life safety	6
EC 2.	Business Planning	6
EC 3.	Intelligent Systems	6
EC 4.	Information Wars	6
EC 5.	IT Law	6
EC 6.	Corporate Information Distributed Systems	6
EC 7.	Recommender Systems Design	6
EC 8.	Mathematical Methods and Models of Complex Economic Systems	6
EC 9.	Modelling data under uncertainty	6
EC 10	Applied Systems Analysis	6
EC 11	Decision support systems	6
EC12	Functional and logic programming	6
EC13	Enterprise Java Programming	6
EC14	WEB-analytics	6
Elective Components Total Scope:		**24**
THE EDUCATIONAL PROGRAMME TOTAL SCOPE:		**90**

For all components of the educational program, the form of final control is an exam.

3.2.2. Structural and logical scheme of the educational programme



3.2.3 Attestation Form of higher education for students

Attestation is carried out in the form of Master thesis public defence.

Master thesis involves an independent solution of a complex problem in the field of information systems and technologies, accompanied by research and/or the use of innovative approaches.

The Master thesis should not contain academic plagiarism, fabrication and falsification.

The Master thesis must be published on the official website of the higher education institution or its subdivision, or in the repository of the higher education institution.

3.4. Program Competences Compliance Matrix components of the educational programme

Components / Competences	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9	EC 1	EC 2	EC 3	EC 4	EC 5	EC 6	EC 7	EC 8	EC 9	EC 10	EC 11	EC 12	EC 13	EC 14
GC 01	•	•	•		•	•			•		•	•			•	•	•	•	•	•	•	•	
GC 02							•																
GC 03	•		•	•		•		•	•	•				•									•
GC 04		•		•					•							•							
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SC 04	•	•	•					•	•								•	•					
SC 05			•		•			•	•										•				•
SC 06				•				•	•														
SC 07	•			•					•														

3.5. Matrix for the provision of programme learning outcomes relevant components of the educational programme

Components / Programme learning outcomes	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9	EC 1	EC 2	EC 3	EC 4	EC 5	EC 6	EC 7	EC 8	EC 9	EC 10	EC 11	EC 12	EC 13	EC 14
PLO 01	•								•														
PLO 02	•						•	•	•	•				•									
PLO 03		•		•		•		•	•			•				•				•			

PLO 04		•		•				•	•								•				
PLO 05		•	•	•				•	•		•				•				•		
PLO 06		•						•	•						•	•				•	
PLO 07		•		•				•	•												
PLO 08		•						•	•								•	•			•	
PLO 09			•		•	•		•	•													•
PLO 10						•		•	•				•									
PLO 11	•				•				•													