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 F6 "Information Systems and Technologies"

1 – GENERAL INFORMATION	
Full name of the HEI and structural unit	State University of Trade and Economics Faculty of Information Technology Department of Computer Science and Information Systems
Academic degree and qualification title in the original language	**Second (Master) Cycle** **Qualification – Master in Information Systems and Technologies**
Field of Study	F Information Technology
Subject Area	F6 Information Systems and Technologies
Educational programme official title	Information Systems and Technologies
Restrictions on Modes of Study	No restrictions
Compliance with the higher education standard of the Ministry of Education and Science of Ukraine	Complies with 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 2026
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, English
Education Programme validity period	Until the approval of the new edition of the educational and professional programme

Internet address for permanent placement of the educational programme description	https://knute.edu.ua/

2-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

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, technical devices, software and hardware systems, 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 focus on 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).

Keywords: information systems and technologies, computer-aided design, Agile IT project management, data analysis technologies, Big Data technologies, distributed

databases and knowledge, intelligent data processing methods.

Educational programme features

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. Availability of a variable component of professionally-oriented courses on information systems and technologies, Internship in research state institutions, enterprises and organizations.

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 Computer Program Development Specialist;

213 Professionals in the field of computing (computerization);

2131 Professionals in the field of computing systems;

2131.2 Computing Systems Developers;

2132 Professionals in the field of programming.

2131.1 Researchers (Computing Systems);

2132.1 Researchers (programming);

2132.2 Computer Program Developers;

2310.2 Other lecturers of higher education institutions;

Further training

Graduates of this educational programme have the right to continue their studies at Third (PhD) Cycle and acquire additional qualifications in the adult education system.

5-TEACHING AND ASSESSMENT

Teaching and learning

Problem-based learning, self-learning, learning through internship. A balanced combination of classroom activities (lectures, laboratory sessions, practical classes, independent work with information sources, consultations with lecturers), distance learning, and self-study based on problem-oriented, interactive learning, and self-learning.

Assessment

Current control, written exams, master 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 for students"

6-PROGRAM COMPETENCES	
Integral competence	
Abilities to solve research and innovation problems in the field of information systems and technologies.	
General Competences (GC)	
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 assess and ensure the quality of the work being performed.
Subject Competences (SC)	
SC01	Abilities to develop and apply ICTs necessary to solve strategic and current problems/tasks.
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 PROGRAMME IMPLEMENTATION

Staffing

The implementation of the educational programme is provided by lecturers 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-based 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

Documents regulating the procedures for admission and studying at SUTE are available on the official website. Course Summaries, Course Outlines, syllabi of courses, and assessment criteria for educational components are posted on the corporate distance learning platform. Open access for students to information and educational-methodical resources through educational process management information systems and other web services:

- The MOODLE distance learning system (provides independent and individual preparation, control), Office 365 resources;
- Free access to the Internet and email;
- Information systems "MIA: Education," "Workload-Schedule," SUTE web resource management;
- Library management system - nearly 1.5 million 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" for users of the SUTE web portal.

Ensuring the publicity of information about educational programmes, 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, 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. The university's electronic repository contains full-text access to scientific and educational literature from SUTE, as well as manuscripts of qualification thesis and dissertations for academic degrees. For the convenience of students, the university has developed a Catalogue of Educational Courses, according to which students have the right to choose elective components.

9-ACADEMIC MOBILITY

National Credit Mobility

National credit mobility is carried out in accordance with the concluded agreements and memoranda of cooperation between SUTE and other higher education institutions (research institutions) in Ukraine, in accordance with the legislation.

International Credit Mobility

The university has concluded cooperation agreements between SUTE and foreign higher education institutions, within the framework of which student exchange and learning are carried out under international programs and projects within the Erasmus+ program

Training of foreign students for higher education
Foreign students 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

N/A code	Components of the educational programme	ECTS credits	Form of control
Compulsory components			
CC 1.	Research Methodology	6	Exam
CC 2.	Computer Simulation and Design Technologies	6	Exam
CC 3.	Data Analysis Technologies	6	Exam
CC 4.	Agile for IT projects management	6	Exam
CC 5.	Big Data Technologies	6	Exam
CC 6.	Technologies for creating distributed databases and knowledge	7,5	Exam
CC 7.	Foreign Language in Information Technology	6	Exam
CC 8.	Internship	10,5	Credit/pass
CC 9.	Preparation of Master thesis public defence	12	public defence
Compulsory components total scope:		**66**	
Elective Components			
EC 1.	Educational component 1	6	Exam
EC 2.	Educational component 2	6	Exam
EC 3.	Educational component 3	6	Exam
EC 4.	Educational component 4	6	Exam
Elective Components Total Scope:		**24**	
THE EDUCATIONAL PROGRAMME TOTAL SCOPE:		**90,0**	

Students choose elective courses through their personal account on the "MIA: Education" portal. The descriptions of the courses and their prerequisites are provided in the SUTE Catalogue of Courses.

3.3. Attestation Form of higher education for students

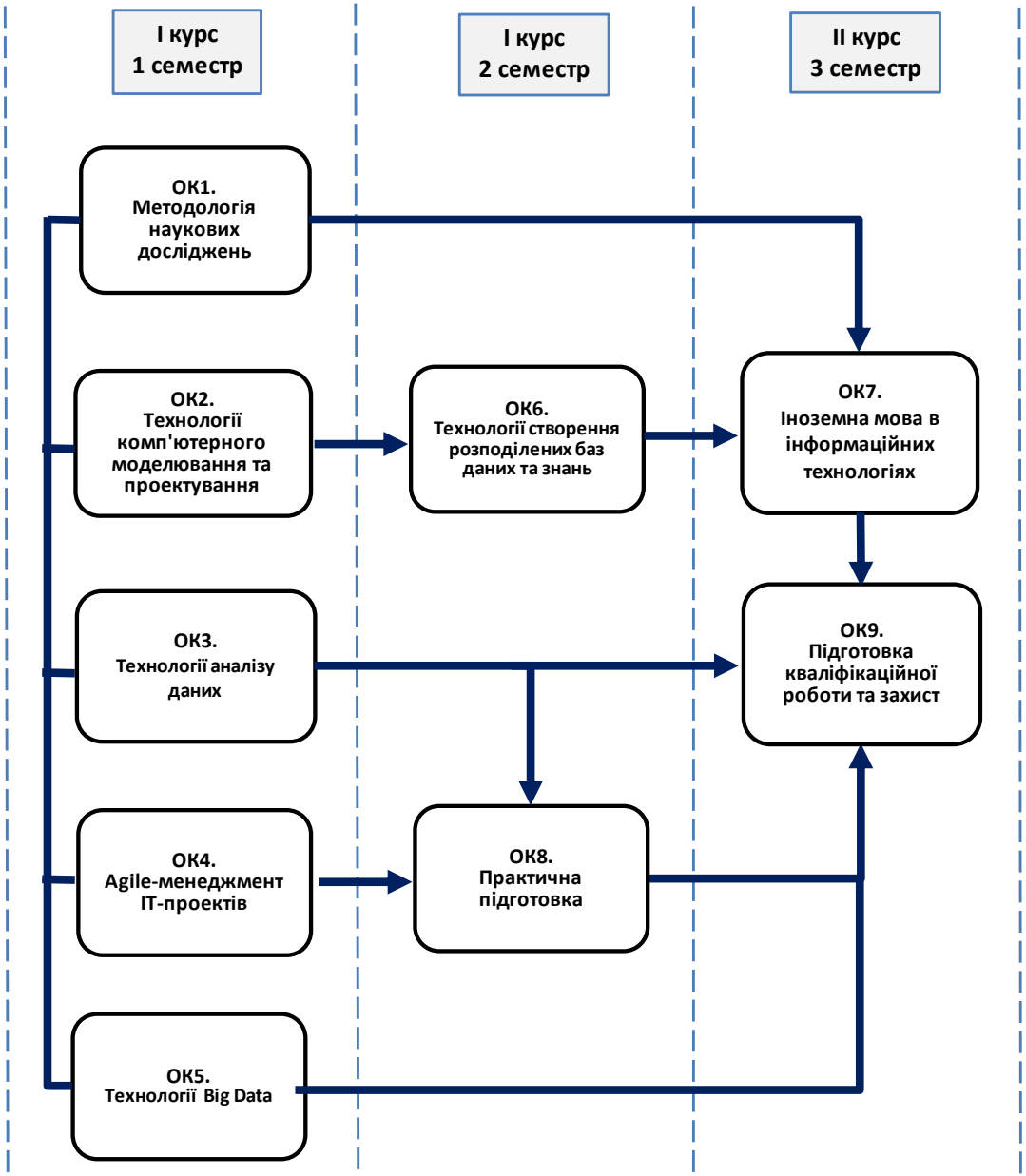
Attestation is carried out in the form of Master thesis public defence.

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.

Structural and logical diagram of the educational programme



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
GC 01	•	•	•		•	•			•
GC 02							•		
GC 03	•		•	•		•		•	•
GC 04		•		•					•
GC 05		•		•				•	•
SC 01		•			•	•		•	•
SC 02		•						•	•
SC 03		•				•		•	•
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
PLO 01	•								•
PLO 02	•						•	•	•
PLO 03		•		•		•		•	•
PLO 04		•		•				•	•
PLO 05		•	•	•				•	•
PLO 06		•		•				•	•
PLO 07		•		•				•	•
PLO 08		•						•	•
PLO 09			•		•	•		•	•
PLO 10						•		•	•
PLO 11	•				•				•