3. Educational Programme

Project team leader (educational programme director) – Alona Desiatko, PhD, Associate Professor of the Department of Software Engineering and Cybersecurity.

3.1. 3.1. Profile of the Educational Programme 'Software Product Project Management' in the Subject Area F2 'Software Engineering'

1 – GENERAL INFORMATION	
Full name of a HEI and a structural unit	State University of Trade and Economics Faculty of International Trade and Law Department of Software Engineering and Cybersecurity
Higher Education Level and qualification name in the original language	*Second (Master's) Cycle* *Qualification – Master's Degree in Software Engineering*
Field of Knowledge	*F Information Technology*
Subject Area	*F2 Software Engineering*
Educational programme official name	Software Product Project Management
Restrictions on Modes of Study	There are 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 (Order No. 1424 dated 17.11.2020)
Diploma type and the Educational programme volume	Master's Degree Diploma, single, 90 ECTS credits, training period - 1 year 4 months
Accreditation Availability	Certificate of accreditation of speciality No. 9792, valid until 01.07.2030, issued by the National Agency for Higher Education Quality Assurance
Higher Education Cycle/Level	National Qualification Frameworks of Ukraine – level 7, FQ-EHEA – the second cycle, EQF-LLL –level 7
Prerequisites for Admission to the	Bachelor's degree (level 6 of the National Qualifications Framework) or higher

Educational Programme	
Language(s) of training	Ukrainian
Programme validity period	Until the approval of the new edition of the educational programme
Internet address for permanent placement of the Educational programme description	https://knute.edu.ua/

2 – THE PURPOSE OF THE EDUCATIONAL PROGRAMME

Formation of a specialist's personality capable of solving complex, non-standard research and innovation-related tasks and problems in the field of software engineering, possessing a comprehensive knowledge system in software project management. The program aims to develop academic, professional, and creative abilities of professionals mastering modern achievements in software project management and capable of addressing complex professional challenges.

3 –EDUCATIONAL PROGRAMME CHARACTERISTICS

Subject Area

Object of study and activity:

Processes of software development, modification, analysis, quality assurance, implementation, and maintenance.

Learning objectives:

Training specialists capable of addressing complex tasks and problems related to the development, quality assurance, implementation, and maintenance of software, which involve conducting research and/or implementing innovations and are characterized by uncertainty of conditions and requirements.

Theoretical content of the subject area:

Fundamental mathematical, infological, linguistic, and economic conceptual foundations for the development and maintenance of software, as well as its quality assurance.

Methods, methodologies, and technologies:

Methods of analysis and modeling of the application domain; identification of information needs; data classification and analysis for software design; methods for developing software requirements; methods for analyzing and constructing software models; methods of software design, construction, integration, testing, and verification; methods for modifying software components and data; models and methods of reliability and quality in software engineering; methods of software/software product project management; software product security technologies.

Tools and equipment:

Software-hardware and cloud-based tools supporting software engineering processes.

Educational Programme Orientation

Educational and professional; applied.

The Main Focus of the Educational Programme

Specialized education in the field of Information Technology in the specialty F2 "Software Engineering". The focus is on developing the specialist's ability to perform managerial, research, and innovative activities under real-world conditions of software development and software project management.

Keywords: software product, project management, software product management, software product life cycle, programming, testing, and software product security technologies.

Educational Programme Features

ntegration of professional training in software engineering with innovative activity, with a focus on software project development and the tools and methods of software project management..

4 – EMPLOYABILITY AND FURTHER EDUCATION OPPORTUNITIES FOR GRADUATES

Employability

Field of professional activity:

Development of software products, technologies and tools for software development, software project management, scientific research, expert and consulting activities in the field of software engineering.

A graduate may hold entry-level positions (according to the National Classifier of Occupations of Ukraine DK 003:2010):

1238 – Project and Program Managers
2447 – Professionals in Project and Program Management
213 – Computing Professionals
2132 – Software Development Professionals
2132.2 – Computer Software Developers
312 – Technical Specialists in Computing
3121 – Programming Technicians
2132.2 – Software Engineer
2132.2 – Database Programmer
2132.2 – Application Programmer
2132.2 – Systems Programmer
3121 – Programming Technician
3121 – Information Technology Specialist
3121 – Computer Graphics (Design) Specialist
3121 – Software Development and Testing Specialist
3121 – Computer Software Development Specialist

Further Education Opportunities

The opportunity to continue education at the third (academic) level of higher education. Acquisition of additional qualifications in the adult education system.

5 – TEACHING AND ASSESSMENT

Teaching and learning

A balanced combination of classroom activities (lectures-discussions, seminars, practical classes in small groups, independent work with information sources, consultations with lecturers) and distance learning and independent work based on problem-oriented, interactive learning and self-study.

Assessment

The assessment of students' learning outcomes is carried out in accordance with the Regulations on Assessment of Undergraduate and Postgraduate Students' Learning Outcomes at SUTE and includes the following control measures: current and final examinations, and certification.

Current control is carried out during practical/laboratory classes and based on the results of independent work. It involves the assessment of students' theoretical training during seminars and acquired practical skills during laboratory/practical work.

Final control is a control measure that involves establishing the compliance (measurement, evaluation) of the learning outcomes obtained by a person with the requirements of the Educational programme in terms of the relevant educational component, which is carried out at the university in the form of a credit and an exam.

Students' learning outcomes at SUTE are assessed on a 100-point scale, where: 60-100 points – learning outcomes that entitle the student to obtain ECTS credits; 0-59 points – unsatisfactory learning outcomes that do not entitle the student to obtain ECTS credits.

6 - PROGRAMME COMPETENCES

Integral competence		
The ability of an individual to solve complex tasks and problems in a specific field of professional activity or in the learning process, involving research and/or innovation, characterized by uncertainty of conditions and requirements, and requiring the application of software project management methodologies.		
General competences (GC)		General competences (GC)
GC01	Ability for abstract thinking, analysis, and synthesis.	
GC02	Ability to communicate in a foreign language, both orally and in writing.	
GC03	Ability to conduct research at the appropriate level.	
GC04	Ability to communicate with representatives of other professional groups at various levels (with experts from other fields of knowledge or types of economic activity).	
GC05	Ability to generate new ideas (creativity).	
Special (professional, , subject-specific) competences (SC)		Special (professional, , subject-specific) competences (SC)
SC01	Ability to analyze subject domains, formulate and classify software requirements.	
SC02	Ability to design and implement scientific and/or applied projects in the field of software engineering.	
SC03	Ability to design software/software product architecture and model the functioning of individual subsystems and modules.	
SC04	Ability to develop and implement new competitive ideas in software engineering.	
SC05	Ability to develop, analyze, and apply specifications, standards, rules, and guidelines in the field of software engineering.	
SC06	Ability to effectively manage financial, human, technical, and other project resources in software engineering.	
SC07	Ability to critically comprehend problems in the field of information technology and at the intersection of disciplines, integrate relevant knowledge, and solve complex tasks in broad or multidisciplinary contexts.	
SC08	Ability to develop and coordinate processes, stages, and iterations of the software/software product life cycle based on the application of modern models, methods, and technologies of software/software product development.	

SC09	Ability to ensure the quality of software/software products.
SC10	*Ability to apply approaches to software project management and protection throughout the project.*
SC11	*Ability to apply project management industry standards focused on the business justification of software product projects.*

7 –PROGRAMME LEARNING OUTCOMES		**7 – PROGRAMME LEARNING OUTCOMES**
PLO01	Know and apply modern professional standards and other regulatory documents in software engineering.	
PLO02	Evaluate and select effective methods and models for software development, implementation, maintenance, and management of related processes at all stages of the software life cycle.	
PLO03	Construct and analyze models of information processes in the application domain.	
PLO04	Identify information needs and classify data for software design.	
PLO05	Develop, analyze, justify, and systematize software requirements.	
PLO06	Develop and evaluate software design strategies; justify, analyze, and assess design solutions in terms of final software product quality, resource constraints, and other factors.	
PLO07	Analyze, evaluate, and apply modern software and hardware platforms at the system level to solve complex software engineering problems.	
PLO08	Develop and modify software architecture to meet customer requirements.	
PLO09	Reasonably select programming paradigms and languages for software development; apply modern software development tools in practice.	
PLO10	Modify existing and develop new algorithmic solutions for detailed software design.	
PLO11	Ensure quality at all stages of the software life cycle, including through the use of relevant evaluation models and methods, as well as automated testing and verification tools.	
PLO12	Make effective organizational and managerial decisions under conditions of uncertainty and changing requirements; compare alternatives and assess risks.	

PLO13	Configure software, manage changes, and develop technical documentation at all stages of the software life cycle.
PLO14	Forecast the development of software systems and information technologies.
PLO15	Perform software reengineering according to customer requirements.
PLO16	Plan, organize, and conduct software testing, verification, and validation.
PLO17	Collect, analyze, and evaluate the information needed to solve scientific and applied problems using scientific and technical literature, databases, and other sources.
PLO18	*Understand the framework and methods for building and applying a software product management system.*
PLO19	*Be able to select and automatically configure software product management technology according to the software life cycle and protection requirements.*
PLO20	*Be able to coordinate heterogeneous projects within a software product project management system.*

8 – RESOURCE SUPPORT FOR PROGRAMME IMPLEMENTATION

Staffing

Fully complies with the licensing requirements for educational activities. The educational and professional programme 'Software Product Project Management' is implemented by academic staff with scientific degrees and/or academic titles who meet the requirements of the current legislation of Ukraine and have a sufficient level of scientific and professional qualifications. Practitioners, representatives of professional associations and foreign partners are also involved in the educational process.
All academic staff undergo training/professional development every five years

Material and technical support

Fully complies with the Licensing Requirements for Educational Activities. For the convenience of higher education students, there is a corporate distance learning system and an automated educational process management system called 'MIA: Education'. The university has modern computer classrooms with specialised software, a Business Simulation Training and Research Centre and a Smart Library. All conditions for the education of persons with disabilities have been created. SUTE social infrastructure is available.

Information and educational-methodological support

An ECTS Information Package is developed for each educational programme at the university. Each student can view and create his/her individual plan, view the curriculum, grades obtained in disciplines, class schedule, and communicate with participants in

the educational process through a personal account in the MIA: Education automated information system.

Course summaries, course outlines, syllabi and assessment criteria for educational components are posted on the corporate distance learning platform.

The university's electronic repository provides full-text access to SUTE scientific and educational literature, manuscripts of qualification works and theses for obtaining academic degrees.

For the convenience of higher education students, the university has developed a Catalogue of Academic Disciplines, according to which students have the right to choose elective educational components.

9 – ACADEMIC MOBILITY

National credit mobility

National credit mobility is implemented within the framework of memoranda of cooperation concluded between SUTE and other higher education institutions (research institutions) in Ukraine under the law.

International credit mobility

The university has signed cooperation agreements between SUTE and foreign higher education institutions, which provide for partnership exchanges and training of students under international programmes and projects within the Erasmus+ programme.
Organization of Credit Mobility (except for the 1st year) for Bachelor's Students
An Erasmus+ Learning Agreement for Student Mobility for Studies under the International Mobility Programme (KA171) is in place between Kyiv National University of Trade and Economics (KNUTE) and the Slovak University of Technology in Bratislava.
The academic mobility agreement is valid from 2024 to 2027 and provides opportunities for bachelor's degree students (starting from the 2nd year) to participate in credit mobility programs.

Foreign higher education students training

It is carried out in accordance with the requirements of the current legislation.

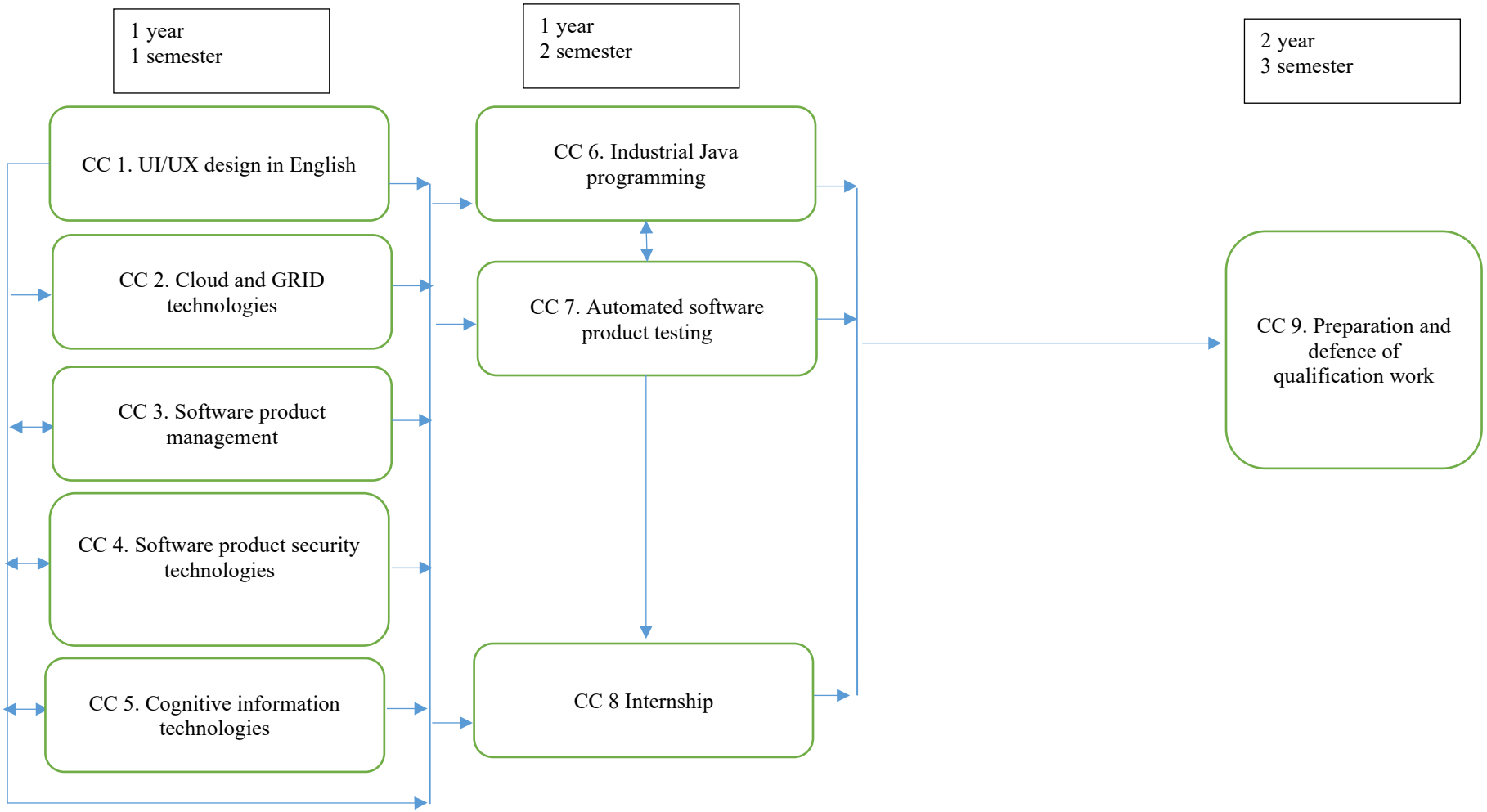
3.2. LIST OF THE EDUCATIONAL PROGRAMME COMPONENTS AND THEIR LOGICAL SEQUENCE

3.2.1.LIST OF EP COMPONENTS

Code	Educational programme components	The number of credits	Form of control
EP Compulsory Components			
CC 1.	UI/UX design in English	6	Exam
CC 2.	Cloud and GRID technologies	6	Exam
CC 3.	Software product management	6	Exam
CC 4.	Software product security technologies	6	Exam
CC 5.	Cognitive information technologies	6	Exam
CC 6.	Industrial Java programming	7,5	Exam
CC 7.	Automated software product testing	6	Exam
CC 8.	Internship	10,5	Credit
CC 9.	Preparation and defence of qualification work	12	Defence
Total Volume of Compulsory Components		**66**	
EP Elective Components			
EC1.	Educational Component 1	6	Exam
EC2.	Educational Component 2	6	Exam
EC3.	Educational Component 3	6	Exam
EC4.	Educational Component 4	6	Exam
Total Volume of Elective Components		**24**	
TOTAL EP VOLUME:		**90,0**	

Higher education students choose their elective disciplines through the personal account of the portal "MIA: Education". Descriptions of the disciplines and their prerequisites are available in the SUTE Catalogue of Disciplines.

3.2.2. Structural and logical scheme of EP



3.3. FORMS OF ATTESTATION OF HIGHER EDUCATION STUDENTS

Attestation is carried out in the form of a public defence of a qualification work. The qualification work should provide for the solution of a complex specialised task or problem in the field of modern marketing, which involves research and/or innovation and is characterised by uncertainty of conditions and requirements. The qualification work must not contain academic plagiarism, including incorrect textual borrowings, fabrication and falsification. The qualification work must be published on the official website of the higher education institution, its subdivision or placed in its repository. The publication of qualification papers containing information with restricted access is carried out in accordance with the requirements of the current legislation.

3.4 MATRIX OF CORRESPONDENCE BETWEEN PROGRAM COMPETENCIES AND COMPULSORY 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
GC01		+	+	+	+	+	+	+	+
GC02	+	+			+	+	+	+	+
GC03		+	+		+		+	+	+
GC04		+	+					+	+
GC05	+	+	+		+		+	+	+
SC01			+	+	+	+	+	+	+
SC02		+	+		+	+		+	+
SC03					+	+		+	+
SC04	+	+	+		+			+	+
SC05			+	+		+		+	+
SC06			+				+	+	+
SC07		+	+	+	+		+	+	+
SC08			+		+		+	+	+
SC09					+	+	+	+	+
SC10			+					+	+
SC11			+					+	+

3.5. MATRIX OF CORRELATION BETWEEN PROGRAM LEARNING OUTCOMES AND COMPULSORY 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
PLO01	+	+	+	+	+	+	+	+	+
PLO02	+		+	+		+	+	+	+
PLO03	+		+					+	+
PLO04	+		+			+	+	+	+
PLO05	+	+	+	+				+	+
PLO06	+		+				+	+	+
PLO07		+		+				+	+
PLO08	+				+	+		+	+
PLO09						+		+	+
PLO10						+		+	+
PLO11		+	+		+	+	+	+	+
PLO12	+	+		+				+	+
PLO13						+		+	+
PLO14		+	+		+			+	+
PLO15	+							+	+
PLO16							+	+	+
PLO17	+		+		+	+		+	+
PLO18			+					+	+
PLO19			+					+	+
PLO20			+					+	+

Appendix

LIST OF RECOMMENDED ELECTIVE COMPONENTS

Code	EDUCATIONAL PROGRAMME COMPONENTS	The number of credits
EC 1.	Architecture and programming technologies for mobile applications	**6**
EC 2.	Administration and protection of data storage facilities	**6**
EC 3.	Information technologies in the system of ensuring economic security of the state	**6**
EC 4.	Fundamentals of cyber diplomacy in English	**6**
EC 5.	Web resource security technologies	**6**
EC 6.	Information system design technologies	**6**