Kyiv National University of Trade and Economics Faculty of Information Technologies

INFORMATION PACKAGE European Credit Transfer System (ECTS)

Field of knowledge Specialty Specialization Educational degree 12 «Information technology» 121 «Software Engineering» «Software Engineering» «Master»

3. Educational program

Head of the project group (guarantor of the educational program) -Tokar Volodymyr Volodymyrovych, Doctor of Economics, Professor, Professor of the Department of Software Engineering and Cybersecurity.

1. Profile of the educational program from the specialty 121 "Software Engineering"

1 – - General information									
Full name of the higher	Kyiv National University of Trade and Economics								
educational establishment	Faculty of Information Technologies								
and structural unit	Department of Software Engineering and Cyber Security								
Degree of higher education	degree of higher education "master"								
and the name of the	specialty "Software Engineering"								
qualification in the	specialization "Software Engineering"								
language of the									
original									
The official name of the	"Software Engineering"								
educational program									
Type of diploma and	Master's degree, unitary, 90 ECTS credits, term of training – 1 year 4								
volume of educational	months								
program									
Presence of accreditation	National Agency for Quality Assurance in Higher Education of Ukraine;								
	Decision \mathbb{N} 17 (3.97) dated 23.12.2019;								
	The certificate is valid until 23.12.2024.								
Cycle / Level	NRC Ukraine - 8 level,								
	FQ-EHEA - second cycle,								
	EQF-LLL - 7 level								
Prerequisites	Scientific degree - Bachelor								
Language (s) Teaching	Ukrainian								
Validity of the	1 year 4 months								
educational program									
Internet address of the	https://knute.edu.ua								
permanent placement of									
the description of the									
educational program									
2 - 7	The purpose of the educational program								
Formation of the personality	of a specialist, capable to solve complex non-standard tasks and problems								
of research and innovative cl	naracter in the field of software engineering								
<u>3-C</u>	haracteristics of the educational program								
Subject area (branch	Branch of knowledge 12 «Information technologies»								
of knowledge,	Specialty 121 «Software Engineering"								
specialty,	Specialization «Software Engineering"								
specialization) (in the									
presence)									
Orientation of	The program is focused on educational, professional and applied training								
educational program									
The main focus of the	Educational and professional. Emphasis on the ability of the specialist to								
educational program	carry out research and innovation activities in the real conditions of								
F	industrial software production.								

(specialization "Software Engineering")

1 • 1• 4•	Variational programming logical programming higherita												
and specialization	Keywords: functional programming, logical programming, biometric authentication technologies; GRID technologies; design of multimedia systems; security of telecommunication networks												
	authentication technologies; GRID technologies; design of multimedia systems; security of telecommunication networks Integration of professional training in the field of software engineering with innovative activities, focus on the implementation of real software												
	/stems; security of telecommunication networks tegration of professional training in the field of software engineering ith innovative activities, focus on the implementation of real software												
Features of the	Integration of professional training in the field of software engineering												
program	with innovative activities, focus on the implementation of real software												
	projects.												
4 – Eligibility	of graduates for employment and further training												
Eligibility for	The specialist may hold primary positions (according to the Classifier of												
employment	Professions of Ukraine ДК 003: 2010): 2132.2 (22481).												
chipioy mene	Can hold the following positions: software developer; back-end												
	developer; developer (applied); system developer; computer software												
	engineer; junior researcher (programming); researcher (programming);												
	researcher-consultant (programming).												
Further education	Studying for the programs: the third educational (educational-scientific)												
	level, the first scientific degree												
5 – Teaching and evaluation													
Teaching and learning	Focused on students teaching, self-studying, laboratory-based												
	learning, problem-based, interactive, project-based, information-												
	computer, self-development, collective and integrative, contextual												
	learning technologies												
Assessment	"Regulations on the organization of the educational process of students"												
	"Regulations on the evaluation of learning outcomes of students and graduate												
	students."												
	Written exams, practice, essays, presentations, testing, defense of laboratory												
	works, defense of individual works, defense of the final qualification project.												
	6 – Program competencies												
Integral competence	A person's ability to solve complex problems and problems in a particular												
integral competence	field of professional activity or in the learning process, which involves												
	research and / or innovation and is characterized by uncertainty of												
	conditions and requirements.												
General competences	GC01. Ability to abstract thinking, analysis and synthesis.												
(GC)	GC02. Ability to communicate in a foreign language both orally and in												
	writing.												
	GC03. Ability to conduct theoretical and applied research at the												
	appropriate level.												
	GC04. Ability to communicate with representatives of other professional												
	groups of different levels (with experts from other fields of knowledge /												
	types of economic activity).												
	GC05. Ability to generate new ideas (creativity).												
Special competencies (SC)	SC01. Ability to analyze subject areas, form, analyze and model software												
	requirements.												
	SC02. Ability to develop and implement scientific and / or applied projects												
	in the field of software engineering.												
	SC03. Ability to design software architecture, model the operation of												
	Individual subsystems and modules.												
	SC04. Additive to develop and implement new competitive ideas in software												
	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 the field of software engineering												
	SC07. Ability to critically comprehend problems in the field of information												
	technology and on the border of fields of knowledge to integrate relevant												
	knowledge and solve complex problems in broad or multidisciplinary												
	contexts.												
	SC08. Ability to develop and coordinate processes, stages and iterations of												

	the software life cycle based on the application of modern models, methods
	and technologies of software development.
	SC09. Additive to ensure software quanty.
	7 – Program learning outcomes
	PLO 01. To know and apply modern professional standards and other legal
	PLO 02 To evaluate and select effective methods and models for the
	development, implementation, maintenance of software and management
	of relevant processes at all stages of the life cycle.
	PLO 03. To build and research models of information processes in the application field.
	PLO 04. To identify information needs and classify data for software design
	PLO 05. To develop, analyze, justify and systematize software
	requirements. PLO 06. To develop and evaluate software design strategies: substantiate
	analyze and evaluate design solutions in terms of quality of the final software product, resource constraints and other factors.
	PLO 07. To analyze, evaluate and apply at the system level modern software and hardware platforms to solve complex problems of software
	engineering. PLO 08. To develop and modify software architecture to meet customer
	requirements.
	software development; to apply in practice modern software development
	PLO 10. To modify existing and develop new algorithmic solutions for detailed software design
	PLO 11. To ensure quality at all stages of the software life cycle, including using relevant models and assessment methods, as well as automated
	software testing and verification tools.
	conditions of uncertainty and changing requirements, compare alternatives
	assess risks.
	PLO 13. To configure software, manage its changes and develop software
	documentation at all stages of the life cycle.
	PLO 14. To predict the development of software systems and information
	$PI \cap 15$ To carry out software reengineering in accordance with customer
	requirements.
	PLO 16. To plan, organize and perform software testing, verification and validation
	PLO 17. To collect, analyze, evaluate the information needed to solve
	scientific and applied problems, using scientific and technical literature,
	databases and other sources.
8 – Resource	support for the implementation of the program
Personnel provision	Project team: 4 Phd (2 candidates and 2 doctors)
	All developers are full-time employees of the Kylv National University of Trade and Economics
	Scientific and pedagogical workers with scientific degrees and / or
	academic titles, as well as highly qualified specialists are involved in the
	implementation of the program.
	In order to improve their professional level, all scientific and pedagogical
Matarial and tachnical	Use of KNUTE laboratories computer and specialized classrooms
support	ese of fitter in aboratories, compater and specialized classicollis
support	

Informational and educational support	The available MOODLE distance learning system and the MS Office 365 environment provide independent and individual work of students.								
9 – Academic mobility									
National credit mobility	Credit Mobility Organization Project by EPAM SYSTEMS Company, SE "Ukrainian Institute of Intellectual Property", Prokom Certified Training Center, Pearson Education Company, Parus Corporation, BGS Group of Companies.								
International credit mobility	Project Paris Est Creteil University (Paris, France), Audencia Business School (Nantes, France, University of Grenoble Alps (Grenoble, France), University of Central Lancashire (Preston, UK), Hohenheim University (Stuttgart, Germany).								
Education for foreign applicants for higher education	Provided.								

2. List of components of the educational program and their logical consistency 2.1. List of components of EP

Code e/d	Components of the educational program	Number of
	(academic disciplines, course projects (works), practices,	credits
	qualification exam,	
1	final qualifying work)	3
1	Compulsory Components of FP	5
CC 1	English for Information Technologies	6
		6
CC 2.	Cloud and GRID Technologies	0
CC 3.	Functional and Logical Programming	0
<u> </u>	Enterprise Java Programming	7,5
<u> </u>	Information System Design Technologies	7,5
CC 0.	VP Technologies and 2D Modeling	6
Total of Co	mulacry Components	45
Total of Co	Inpuisory Components:	45
	Optional Components of EP	
OC 1	Architecture and Technologies of Mobile Application Programming	6
OK 2.	Database administration and protection	6
OC 3.	Biometric Authentication Technologies in Information Systems	6
OC 4.	Protection of electronic communication systems	6
OC 5.	Intellectual Property	6
OC 6.	Information technologies in the system of ensuring the economic security of the state	6
OC 7.	IT law	6
OC 8.	Methods and means of information protection in computer systems	6
00.9	Programming and administration of the enterprise information system	6
OC 10	Design of multimedia systems	6
00 10.	Psychology of adaptation	0
0C 12	Business psychology	6
OC 12.	WPE application technologies	6
0C 13.	Web resource security technologies	6
0C 15	Data analysis technologies	6
OC 16	Philosophy of personality	6
Total of On	ptional Components	24
F	Practical training	21
Industrial prac	9	
	Attestation	1
Preparation of	final qualifying work and defense	12
Total of Ed	lucational Program	90
	0	

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



2.1. Structural Logic Scheme of Educational Program

3. Form of attestation of applicants for higher education

Forms of attestation of	Attestation is carried out in the form of public defense												
applicants for higher	of the final qualifying work.												
education													
Requirements for final	The final qualification work must solve a complex												
qualification work	problem or problem of software engineering and												
	involve research and / or innovation.												
	The final qualifying work should not contain academic												
	plagiarism, fabrication, falsification.												
	The final qualifying work must be published on the												
	official website of the higher education institution or its												
	subdivision, or in the repository of the higher education												
	institution.												
	Publication of final qualifying works with limited												
	access is carried out in accordance with the												
	requirements of the legislation.												

4.1. Matrix of correspondence of program competencies with the compulsory components of the educational program

Components							
	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7
Competencies							
GC01		+	+	+	+	+	+
GC02	+	+		+		+	+
GC03		+	+		+	+	+
GC04		+			+		
GC05	+	+	+		+	+	+
SC01			+	+	+	+	+
SC02		+		+	+		+
SC03				+	+		+
SC04	+	+			+		+
SC05				+	+		
SC06					+	+	
SC07		+	+		+	+	+
SC08			+		+	+	+
SC09			+	+		+	+

Components																
	0C 1	0C 2	0C 3	0C 4	0C 5	0C 6	0C 7	OC 8	0C 9	OC 10	OC 11	OC 12	OC 13	OC 14	OC 15	OC 16
Competencies																
GC01	+	+	+	+	+	+	+	+	+	+			+	+	+	
GC02	+					+			+	+			+	+		
GC03			+		+	+									+	
GC04		+					+			+	+	+	+			+
GC05	+		+				+			+	+	+				+
SC01	+		+						+	+			+		+	
SC02	+		+	+				+							+	
SC03	+			+					+							
SC04	+						+		+	+			+			
SC05	+								+					+		
SC06			+				+						+			
SC07						+				+					+	
SC08		+													+	
SC09	+	+	+										+	+		

4.2. Matrix of correspondence of program competences with optional components of the educational program

Components							
Program learning outcomes	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7
PLO 01	+	+	+	+	+	+	+
PLO 02			+	+	+	+	+
PLO 03	+				+		
PLO 04			+	+	+	+	+
PLO 05		+			+		
PLO 06					+	+	
PLO 07		+			+		
PLO 08				+	+		
PLO 09			+	+			+
PLO 10			+	+			+
PLO 11		+	+	+	+	+	+
PLO 12		+			+		
PLO 13			+	+	+		
PLO 14		+			+		
PLO 15	+		+		+		+
PLO 16					+	+	
PLO 17	+			+	+		

5.1. Matrix of correspondence of program learning outcomes (PLO) with relevant compulsory components of the educational program

Components Program learning outcomes	0C 1	0C 2	0C 3	0C 4	0C 5	0C 6	0C 7	0C 8	0C 9	OC 10	OC 11	OC 12	OC 13	OC 14	OC 15	OC 16
PLO 01	+	+	+	+	+		+	+	+	+			+	+	+	
PLO 02	+		+					+	+	+			+		+	
PLO 03						+		+	+	+					+	
PLO 04	+		+						+	+			+	+	+	
PLO 05								+	+					+		
PLO 06										+						
PLO 07		+							+	+						
PLO 08		+							+	+				+		
PLO 09	+												+			
PLO 10	+												+			
PLO 11	+								+	+			+			
PLO 12				+					+						+	
PLO 13	+						+									
PLO 14			+						+						+	
PLO 15	+												+			
PLO 16							+						+			
PLO 17		+	+	+	+		+	+	+	+	+	+			+	+

5.2. Matrix of correspondence of program learning outcomes (PLO) with relevant optional components of the educational program