MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

KYIV NATIONAL UNIVERSITY
TECHNOLOGY AND DESIGN

APPROVED BY THE LEARNED COUNCIL
Chairman of the Scientific Council of KNUTD
_____ Ivan GRYSHCHENKO
(protocol from «24» 04 2021 year. № 9)

EDUCATIONAL AND PROFESSIONAL PROGRAM

COMPUTER SCIENCE

Level of higher education	first (bachelor)
Degree of higher education	bachelor
Branch of knowledge	12 Information Technology
Specialty	122 Computer science
Qualification	Bachelor of Computer science

Kyiv 2021

LETTER OF AGREEMENT
Educational and professional program
Computer science

Level of higher education first (bachelor)

Degree of higher education bachelor

Branch of knowledge 12 Information Technology

Specialty 122 Computer science

Vice-Rector for Scientific and Pedagogical Activities (Educational Activities)

20.04.2021 _____ Oksana MORGULETS
(date) (signature)

Approved by the academic council of the faculty of mechatronics and computer technologies

Protocol from «_19_» _____04_____ 2021 year № 12

Dean of the faculty of mechatronics and computer technologies

19.04.21 _____ Volodymyr PAVLENKO
(date) (signature)

Discussed and recommended at the meeting of the department of computer sciences and technologies

Protocol from «_6_» _____04_____ 2021 year № 9

Head of the department of computer sciences and technologies

06.04.2021 _____ Volodymyr SHCHERBAN
(date) (signature)

Guarantor of the educational program

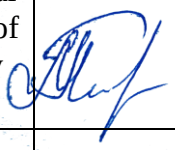
5.04.21 _____ Borys SHRAMCHENKO
(date) (signature)

Implemented by the order of KNUTD from «_11_» _____05_____ 2021 year № 131

PREFACE

DEVELOPED: Kyiv National university of Tehnology and Design

DEVELOPERS:

Educational program support group	**Full name, academic degree, academic title, position**	**Signature**	**Date**
Guarantor of the educational program	Goldberg Maryana Ihorivna, candidate of technical sciences, associate professor, associate professor of the Department of Computer Sciences of the Kyiv National University of Technology and Design		27.09 2023
Workgroup	Melnyk Hennadiy Valeriyovych, candidate of technical sciences, associate professor, associate professor of the Department of Computer Sciences of the Kyiv National University of Technology and Design		27.09 2023
	Chuprinka Nataliya Viktorivna, candidate of technical sciences, associate professor, associate professor of the Department of Computer Sciences of the Kyiv National University of Technology and Design		27.09 2023

REVIEWS OF EXTERNAL STAKEHOLDERS::

1) V.M. Opanasenko, leading researcher of the Institute of Cybernetics named after V.M. Hlushkova of the National Academy of Sciences of Ukraine, laureate of the State Prize of Ukraine in the field of science and technology, doctor of technical sciences, professor; науки і техніки, доктор технічних наук, професор;

2) Petrychenko O.G., general director of the company "Shop-Express";

3) 3) T. Yu. Petrovsky, financial director of the SE "Sunds Textiles Ukraine" of the company "Sunds Textiles A/S" (Denmark);

4) Gerasimov V.V., Deputy Director of Computer Systems LLC "Done Consulting" «Done Consulting»;

5) S. Yu. Polyanskyi, Deputy Director for IT issues of "Mastercloud" LLC;

6) Hryhorenko O.S. the leading manager for the development of software complexes, the IT Department of Technology Development;

7) S. D. Stetsenko, director of DOK PROM LLC, candidate of technical sciences.

Profile of the educational and professional program Computer science

1.1 – General information	
Full name of the institution of higher education and of the structural unit	Kyiv National University of Technology and Design. Department of Computer Sciences.
Level of higher education	First (bachelor's degree)
Educational qualification	Bachelor of Computer Science
Qualification in diploma	Degree of higher education – bachelor. Specialty - 122 Computer Science. Educational program - Computer science..
Type of diploma and scope of the educational program	Bachelor's diploma, single, 240 ECTS credits
Availability of accreditation	Certificate of accreditation of educational and professional program of UD No. 11010110 dated 09.07. 2019
Cycle/level	National qualifications framework of Ukraine - level 6.
Prerequisites	Complete general secondary education, vocational pre-university education or junior bachelor's degree (junior specialist). In accordance with the Standard of higher education for a specialty based on a junior bachelor's degree (OKR of a junior specialist), the University recognizes and re-credits ECTS credits received within the framework of the preliminary educational program of junior bachelor (junior specialist) training.
Teaching language(s)	Ukrainian
Validity of the educational program accreditation certificate	Until July 1, 2025.
Internet address permanent posting of the description of the educational program	http://knutd.edu.ua/ekts/
1.2 – The purpose of the educational program	
Training of specialists with in-depth knowledge, as well as basic and professional competencies in the field of computer science, aimed at forming skills in practical software development for solving analysis and synthesis problems structural, information and functional models of objects and processes of various branches of economic activity, in particular light industry.	
1.3 – Characteristics of the educational program	
Предметна область	*Subject area Object(s) of study and/or activity:* - mathematical, informational, simulation models of real phenomena, objects, systems and processes, subject areas, presentation of data and knowledge; - methods and technologies of obtaining, storing, processing, transmitting and using information, intelligent data analysis and decision-making; - theory, analysis, development, performance evaluation, implementation of algorithms, high-performance computing, including parallel computing and big data. Learning goals: training specialists capable of conducting theoretical and experimental research in the field of computer science; apply mathematical methods and algorithmic principles in modeling, designing, developing and supporting information technologies; carry out development, implementation and support intelligent systems of data analysis and processing of organizational, technical, natural and socio-economic systems.

	Theoretical content of the subject area: modern models, methods, algorithms, technologies, processes and methods of obtaining, presenting, processing, analyzing, transmitting, storing data in information systems. Methods, techniques and technologies: mathematical models, methods and algorithms for solving theoretical and applied problems that arise during IT development; modern technologies and programming platforms; methods of collection, analysis and consolidation of distributed information; technologies and methods of design, development and quality assurance of IT components; computer graphics methods and data visualization technologies; knowledge engineering technologies, CASE - modeling and IT design technologies; Tools and equipment: distributed computing systems; computer networks; mobile and cloud technologies, systems database management, operating systems.
Orientation of the educational program	Educational and professional bachelor's training program.
The main focus of the program	Emphasis is placed on the formation and development of professional competencies in the field of computer science; study of theoretical and methodological provisions, organizational and practical software development tools for various branches of economic activity. Keywords: mathematical, informational, simulation models; data and knowledge presentation models; models, methods and technologies of obtaining, storing, processing, transmitting and using information; intelligent data analysis; high-performance computing; system analysis; models of subject areas; mathematical, software, linguistic, information support of systems for various purposes.
Features of the educational program	Integration of computer and project-technical training in technologies for the development of information systems for solving problems analysis and synthesis of structural, information and functional models of objects and processes, in particular light industry.
1.4 – Graduates' suitability for employment and further education	
Suitability for employment	The graduate is suitable for employment at enterprises, organizations and institutions engaged in the development and maintenance of software, as well as those that generally use computer technologies. Positions: computer systems administrator, database administrator, software engineer, computer application engineer, information technology specialist, software development and testing specialist, computer program development specialist.
Academic rights graduates	The possibility of studying on an educational-scientific and/or educational-professional program of the second (master's) level of higher education.
1.5 – Teaching and assessment	
Teaching and learning	Student-centered and problem-oriented learning, learning through research practice and self-study are used. The system of teaching methods is based on the principles of purposefulness, binary - active direct participation of the scientific and pedagogical worker and the student of higher education. Forms of organization of the educational process: lecture, seminar, practical, laboratory classes, practical training, independent work, consultation.
Assessment	Oral and written exams, assessments, tests, reports, etc.

1.6 – Software competencies		
Integral Competence (IC)	The ability to solve complex specialized tasks and practical problems in the field of computer science or in the learning process that involves the application of theories and methods of information technology and is characterized by the complexity and uncertainty of conditions.	
General competencies (GC)	**GC 1**	Ability to abstract thinking, analysis and synthesis.
	GC 2	Ability to apply knowledge in practical situations.
	GC 3	Knowledge and understanding of the subject area and understanding professional activity.
	GC 4	Ability to communicate in the national language both orally and in writing
	GC 5	Ability to communicate in a foreign language..
	GC 6	Ability to learn and master modern knowledge.
	GC 7	Ability to search, process and analyze information from different sources.
	GC 8	Ability to generate new ideas (creativity).
	GC 9	Ability to work in a team.
	GC 10	Ability to be critical and self-critical.
	GC 11	Ability to make informed decisions.
	GC 12	Ability to evaluate and ensure the quality of performed works.
	GC 13	Ability to act on the basis of ethical considerations.
	GC 14	The ability to exercise one's rights and obligations as a member society, to realize the values of civic (free democratic) society and its necessity sustainable development, the rule of law, human rights and freedoms and a citizen in Ukraine.
	GC 15	Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding history and patterns of development of the subject area, its places in the general system of knowledge about nature and society and in the development of society, technology and technology, use different types and forms of motor activity for active recreation and leading a healthy lifestyle.
Professional competencies (PC)	**PC 1**	Ability to mathematical formulation and research continuous and discrete mathematical models, justification of the choice of methods and approaches for solving theoretical and applied problems in the field of computer science, analysis and interpretation.
	PC 2	Ability to identify statistical regularities non-deterministic phenomena, application of methods computational intelligence, in particular statistical, neural network and fuzzy data processing, methods machine learning and genetic programming, etc.
	PC 3	The ability to think logically, to construct logical ones conclusions, use of formal languages and models algorithmic calculations, design, development, etc analysis of algorithms, evaluation of their effectiveness and algorithmic complexity, solvability and unsolvability problems for adequate modeling of subject areas and creation of software and information systems.

	PC 4	The ability to use modern methods of mathematical modeling of objects, processes and phenomena, to develop models and algorithms for the numerical solution of mathematical modeling problems, to take into account the errors of approximate numerical solving professional problems.
	PC 5	The ability to carry out a formalized description of operations research tasks in organizational-technical and socio-economic systems of various purposes, to determine their optimal solutions, to build optimal management models taking into account changes in the economic situation, optimize management processes in systems of various purposes and hierarchy levels.
	PC 6	Ability to system thinking, application of system analysis methodology for researching complex problems of various nature, methods of formalization and solving system problems tasks with conflicting objectives, uncertainties and risks.
	PC 7	The ability to apply the theoretical and practical foundations of modeling methodology and technology to study the characteristics and behavior of complex objects and systems, conduct computational experiments with processing and analysis of results.
	PC 8	Ability to design and develop software using various programming paradigms: generalized, object-oriented, functional, logical, with appropriate models, methods and calculation algorithms, data structures and control mechanisms.
	PC 9	The ability to implement a multi-level computational model based on a client-server architecture, including databases, knowledge and data warehouses, to perform distributed processing of large data sets on clusters of standard servers to meet the computing needs of users, including including on cloud services.
	PC 10	The ability to apply methodologies, technologies and tools for managing the life cycle processes of information and software systems, products and information technology services in accordance with the customer's requirements.
	PC 11	Ability to intelligently analyze data based on methods of computational intelligence, including large and poorly structured data, their operational processing and visualization of analysis results in the process of solving applied problems.
	PC 12	The ability to ensure the organization of computing processes in information systems of various purposes, taking into account architecture, configuration, indicators performance of operating systems and system software.
	PC 13	Ability to develop network software that functions on the basis of various topologies of structured cabling systems, uses computer systems and data transmission networks and analyzes the quality of computer networks.

	PC 14	Ability to apply methods and means of ensuring information security, develop and operate special information protection software resources of critical information infrastructure facilities.
	PC 15	Ability to analyze and functionally model business processes, build and practically apply functional models of organizational-economic and production-technical systems, methods of assessing their risks designing.
	PC 16	The ability to implement high-performance computing based on cloud services and technologies, parallel and distributed computing during development and operation distributed systems of parallel information processing.
Defined by EP	**PC 17**	The ability to develop information systems to solve the problems of analysis and synthesis of structural, information and functional models of objects and processes, in particular light industry.

1.7 – Program learning outcomes	
PLO 1	Apply knowledge of the basic forms and laws of abstract and logical thinking, the basics of the methodology of scientific knowledge, the forms and methods of extraction, analysis, processing and synthesis of information in the subject area of computer science.
PLO 2	To use the modern mathematical apparatus of continuous and discrete analysis, linear algebra, analytical geometry, in professional activities to solve problems of a theoretical and applied nature in the design process and implementation of informatization objects.
PLO 3	Use the knowledge of regularities of random phenomena, their properties and operations on them, models of random processes and modern software environments to solve problems of statistical data processing and construction predictive models.
PLO 4	Use the methods of computational intelligence, machine learning, neural network and fuzzy data processing, genetic and evolutionary programming to solve problems of recognition, forecasting, classification, identification of control objects, etc.
PLO 5	Design, develop and analyze algorithms for solving computational and logical problems, evaluate the effectiveness and complexity of algorithms based on application of formal models of algorithms and calculated functions.
PLO 6	Use the methods of numerical differentiation and integration of functions, solution of ordinary differential and integral equations, features of numerical methods and possibilities of their adaptation to engineering problems, have skills of software implementation of numerical methods.
PLO 7	Understand the principles of modeling organizational and technical systems and operations; use operations research methods, solving single- and multi-criteria optimization problems of linear, integer, non-linear, stochastic programming.
PLO 8	Use the methodology of system analysis of objects, processes and systems for tasks of analysis, forecasting, management and design of dynamic processes in macroeconomic, technical, technological and financial objects.
PLO 9	Develop software models of subject environments, choose a programming paradigm from the standpoint of convenience and quality of application for the implementation of methods and algorithms for solving problems in the field of computer science.

PLO 10	Use tools for the development of client-server applications, design conceptual, logical and physical models of databases, develop and optimize queries to them, create distributed databases, data stores and showcases, knowledge bases, including on cloud services, with using web programming languages.
PLO 11	To have the skills of managing the life cycle of software, products and services of information technologies in accordance with the requirements and limitations of the customer, to be able to develop project documentation (technical and economic rationale, specifications, business plan, agreement, agreement, contract).
PLO 12	Apply methods and algorithms of computational intelligence and intelligent data analysis in the tasks of classification, forecasting, cluster analysis, search for associative rules using software tools to support multidimensional data analysis based on technologies DataMining, TextMining, WebMining.
PLO 13	To know system programming languages and methods of developing programs that interact with computer system components, to know network technologies, computer network architectures, to have practical technology skills administration of computer networks and their software.
PLO 14	Apply knowledge of methodology and CASE-tools for designing complex systems, methods of structural analysis of systems, object-oriented methodology design in the development and research of functional models of organizational-economic and production-technical systems.
PLO 15	Understand the concept of information security, the principles of safe software design, ensure the security of computer networks in the conditions incompleteness and uncertainty of the original data.
PLO 16	Perform parallel and distributed calculations, apply numerical methods and algorithms for parallel structures, parallel programming languages in the development and operation of parallel and distributed software.
Defined by EP	
PLO 17	To develop professionally, study Ukrainian-language and English-language sources of the subject area, realize the need for lifelong learning in order to deepen the acquired and acquire new professional knowledge in the field of computer science, adapt to work in a specific profession, save and multiply moral, cultural values and achievements of society, promote an active and healthy lifestyle as an effective component of professional development.
PLO 18	Interact with colleagues and work as part of a team, take responsibility for work, associate yourself as a member of civil society and the scientific community, to carry out Ukrainian- and English-language communication on professional issues in the field of computer science.
PLO 19	Develop information systems to solve problems of analysis and synthesis of structural, information and functional models of objects and processes, in particular light industry.
1.8 – Resource support for program implementation	
Personnel software	All scientific and pedagogical workers providing the educational program by qualification correspond to the profile and direction of the educational components being taught; have the necessary teaching experience and experience in practical work. Professionals with experience in research/managerial/innovative/creative work and/or professional work.
Material and technical software	Material and technical support allows you to fully ensure the educational process throughout the entire cycle of educational training program The condition of the premises is certified by sanitary and technical passports that comply with current regulations.

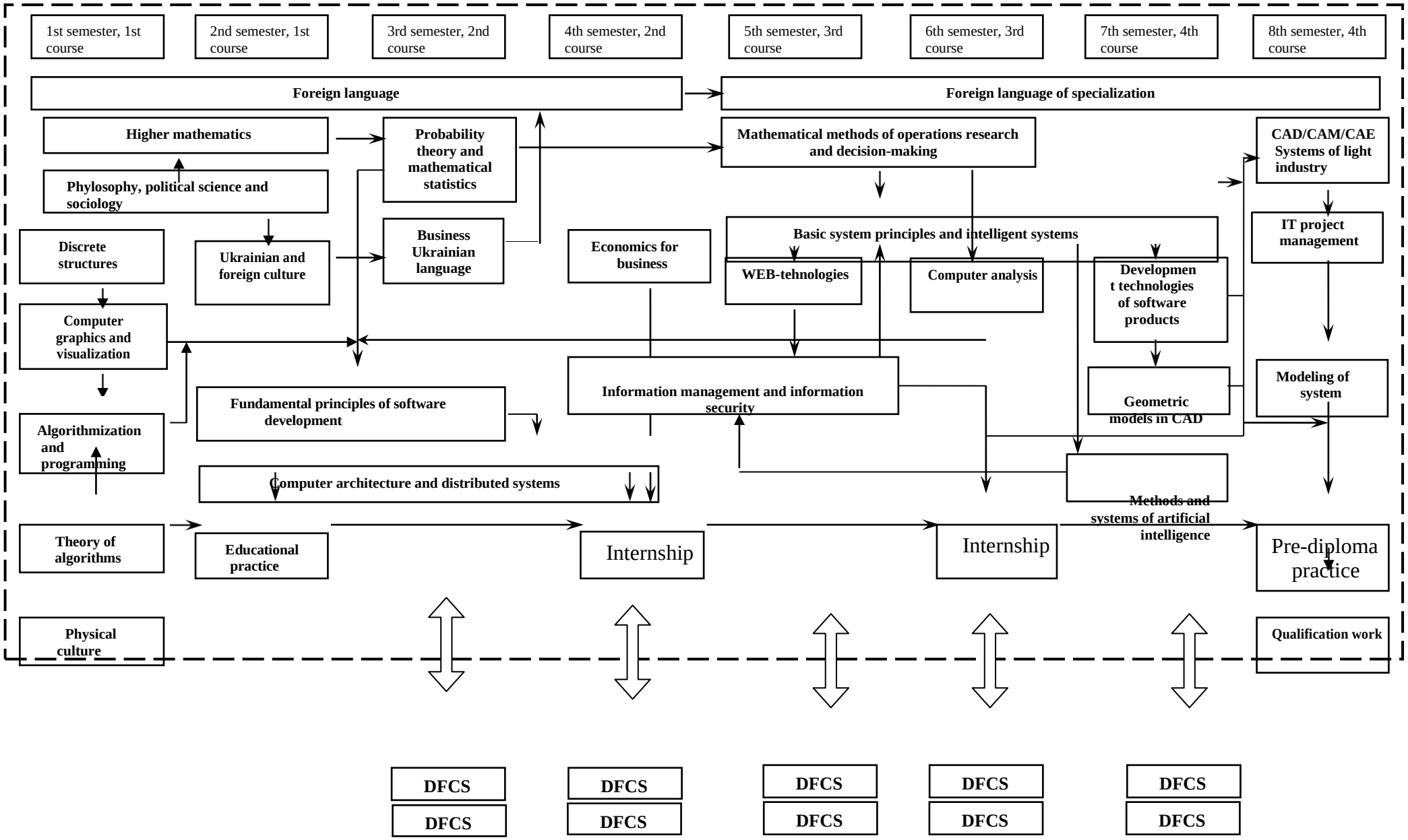
Informational and educational and methodical software	The program is fully equipped with an educational and methodological complex of all educational components. Availability: - Ukrainian and foreign professional periodicals in accordance with the profile of sciences in the library (including in electronic form); - access to publications of scientometric databases Scopus, Web of Science; - the official website of KNUTD, which contains basic information about the organization of the educational process; - modular environment for training IUCN; - electronic library of the university; - educational program, curriculum, work programs, syllabi for all educational disciplines of the curriculum; - practical training programs; - - methodological instructions and presentations regarding the performance of laboratory and practical work.
1.9 – Academic mobility	
National credit mobility	Provides for the possibility of academic mobility in some components of the educational program, which ensure the acquisition of general and/or professional competencies. A cooperation agreement with the Institute of Cybernetics named after V. M. Hlushkova National Academy of Sciences of Ukraine.
International credit mobility	The program develops prospects for participation and internships in research projects and academic mobility programs abroad. Performed in an active research environment according to the agreement with Lithuania business college under the "Applied informatics and programming" program.
Education of foreign university graduates education	It is not expected.

2. List of components of the educational and professional program and their logical sequence

2.1 List of components of the educational and professional program of the first (bachelor) level of higher education

Code n/a	Components of the educational program (study subjects, coursework (projects), practices, qualification work)	Number of credits	The form of the summary control
Mandatory OP components			
EC 1	Ukrainian and foreign culture	3	Test
EC 2	Foreign Language	12	Exam
EC 3	Business Ukrainian language	3	Test
EC 4	Philosophy, political science and sociology	6	Exam
EC 5	Foreign language of specialization	12	Exam
EC 6	Physical Education	3	Test
EC 7	Higher mathematics	12	Exam
EC 8	Discrete structures	3	Exam
EC 9	Economics for business	3	Test
EC 10	Computer graphics and visualization	3	Test
EC 11	Probability theory and mathematical statistics	3	Exam
EC 12	Theory of algorithms	3	Exam
EC 13	Algorithmization and programming	6	Exam
EC 14	WEB technologies	3	Exam
EC 15	CAD/CAM/CAE systems of light industry	3	Exam
EC 16	Development technologies of software products	3	Exam
EC 17	Fundamental principles of software development	12	Exam
EC 18	Information management and information security	9	Exam
EC 19	Computer analysis	3	Exam
EC 20	IT project management	3	Exam
EC 21	Basic system principles and intelligent systems	11	Exam
	Coursework	1	Passing
EC 22	Mathematical methods of operations research and decision-making	6	Exam
EC 23	Methods and systems of artificial intelligence	3	Test
EC 24	Computer architecture and distributed systems	8	Exam
	Coursework	1	Passing
EC 25	Modeling of systems	3	Exam
EC 26	Geometric models in CAD	3	Exam
EC 27	Educational practice	6	Test
EC 28	Internship	12	Test
EC 29	Pre-diploma practice	6	Test
EC 30	Preparation and defense of qualification work	12	Passing
The total volume of mandatory components		**180**	
Elective components of the educational program			
DFC	Disciplines of free choice of a higher education applicant	60	Test
GENERAL SCOPE OF THE EDUCATIONAL PROGRAM		**240**	

2.2. Structural and logical scheme of bachelor's training according to the educational and professional program Computer science with the specialty 122 Computer science



3. Form of attestation of applicants of higher education

Attestation forms applicants of higher education	Certification is carried out in the form of defense of a qualification work
Requirements to qualification work in the specialty	The qualification work should involve a theoretical, system engineering or experimental study of a complex specialized task or practical problem in the field of computer science, which is characterized by the complexity and uncertainty of conditions and requires the application of theories and methods of information technologies. There should be no academic plagiarism, falsification and fabrication in the qualification work. The qualification work must be published on the official KNUTD website in the repository.

4. Matrix of correspondence of program competencies to the components of the educational and professional program

	GC 1	GC 2	GC 3	GC 4	GC 5	GC 6	GC 7	GC 8	GC 9	GC 10	GC 11	GC 12	GC 13	GC 14	GC 15	PC1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 9	PC 10	PC 11	PC 12	PC 13	PC 14	PC 15	PC 16	PC 17
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EC 30		*	*	*		*	*	*		*	*	*	*		*			*				*	*		*		*		*		*	*

5. Matrix of provision of program learning outcomes with relevant components of the educational and professional program

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12	PLO 13	PLO 14	PLO 15	PLO 16	PLO 17	PLO 18	PLO 19
EC 1																	*		
EC 2																	*	*	
EC 3																	*	*	
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Chronology of revision of the educational program

Changes were made to the educational program in accordance with the decision of the academic council of the Faculty of Mechatronics and Computer Technologies:

1. From May 18, 2022, protocol No. 10:

1.1. B In point 1.2 of the profile, the goal of the educational and professional program is edited, taking into account the peculiarities of the educational program; in point 1.8 (resource support for the implementation of the program) detailed components of informational and educational and methodological support (availability of Ukrainian and foreign specialist periodicals in accordance with the profile of sciences in the library (including in electronic form), access to publications of scientometric databases Scopus, Web of Science , access to the official website of KNUTD and the modular environment for studying IUCN, access to the electronic library of the university, access to the educational program, curriculum, work programs, syllabi from all educational disciplines of the curriculum; the name of the Department of Computer Sciences and Technologies has been changed to of Computer Sciences, Order No. 229 dated August 31, 2021, on the reorganization of the educational divisions of the University.

1.2. Entered EC: EC Economics for business (3 credits, 4th semester, credits) was introduced to ensure program competences GC2, GC3, GC8-GC13, PC15 and program learning outcomes PLO8, PLO18.

1.3. Revised matrices of correspondence of program competences and program learning outcomes to the components of the educational and professional program, changes were made ..

2. From June 14, 2023, protocol No. 11 *(in paragraph 1.9 of the profile, the content of the paragraph on national credit mobility was edited due to the conclusion of contract No. 17-23 dated May 31, 2023 with the V. M. Hlushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine..*

3. From October 11, 2023, protocol No. 3:

3.1. The composition of the working group has been changed, order No. 296 of 09/25/2023 "On educational program support groups".

3.2. In the preface, changes were made to the table of developers - the educational program support group;

3.3. In paragraph 1.9 of the profile, the content of the paragraph on international credit mobility due to the agreement on scientific and educational cooperation No. 57 dated 08.31.2023 with Lithuania business college under the "Applied informatics and programming" program has been edited.

ЗАТВЕРДЖЕНО

Рішення Вченої ради КНУТД

від "30" 06 2021 р. протокол № 11

Голова Вченої ради

Іван ГРИЩЕНКО

Міністерство освіти і науки України

Київський національний університет технологій та дизайну

НАВЧАЛЬНИЙ ПЛАН

Рівень вищої освіти перший (бакалаврський) (назва рівня вищої освіти)

галузь знань 12 Інформаційні технології (шифр і найменування галузі знань)

Освітня кваліфікація бакалавр з комп'ютерних наук (найменування спеціальності)

Спеціальність 122 Комп'ютерні науки (код і найменування спеціальності)

Строк навчання 3 роки 10 місяців (роки і місяці)

Спеціалізація (за наявності) (шифр і найменування спеціалізації)

На основі повної загальної середньої освіти (освітній рівень)

Освітня програма Комп'ютерні науки (назва освітньої програми)

Форма здобуття вищої освіти денна (денна, вечірня, заочна, дистанційна)

І. ГРАФІК НАВЧАЛЬНОГО ПРОЦЕСУ

Курс	Серпень				Вересень				Жовтень					Листопад				Грудень				Січень					Лютий				Березень				Квітень				Травень					Червень					Липень			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1			.	.	.	.	.	.	.	.	.	.	.	.	s	s	s	s	s	С	С	С	К	К	К	К	К	К	Н	Н	Н	Н	.	.	.	.	.	.	.	.	.	.	.	.	s	s	С	С	К	К	К	К
2	.	.	.	.	.	.	.	.	.	.	.	.	s	s	s	s	s	С	С	С	К	К	К	К	К	К	К	В	В	В	В	.	.	.	.	.	.	.	.	.	.	.	.	s	s	С	С	К	К	К	К
3	.	.	.	.	.	.	.	.	.	.	.	.	s	s	s	s	s	С	С	С	К	К	К	К	К	К	К	В	В	В	В	.	.	.	.	.	.	.	.	.	.	.	.	s	s	С	С	К	К	К	К
4	.	.	.	.	.	.	.	.	.	.	.	.	s	s	s	s	s	С	С	С	К	К	К	К	К	К	К	П	П	П	П	.	.	.	.	.	.	С	С	Д	Д	Д	Д	Д	Д	А	А				

ПОЗНАЧЕННЯ: - - теоретичне навчання; s - індивідуальні завдання та консультації; С- екзаменаційна сесія (в т.ч. додаткова для ліквідації академзаборгованостей);
Н - навчальна практика; В - виробнича практика; П - переддипломна практика; Д - дипломне проєктування; К - канікули; А - Атестація

ІІ. ЗВЕДЕНІ ДАНІ, тижні

Курс	Теоретичне навчання, індивідуальні завдання та консультації	Екзаменаційна сесія	Практика	Атестація	Виконання кваліфікаційної роботи (проєкту)	Канікули	Разом
1	31	5	4			10	50
2	31	5	4			12	52
3	31	5	4			12	52
4	23	5	4	2	6	8	48
Разом	**116**	**20**	**16**	**2**	**6**	**42**	202

ІІІ. ПРАКТИКА

Назва практики	Семестр	Тижні
Навчальна	2	4
Виробнича	4,6	8
Переддипломна	8	4

IV. АТЕСТАЦІЯ

Форма атестації	Семестр
Захист кваліфікаційної роботи	8

Шифр за ОП	Назва освітнього компонента	Розподіл за семестрами				Кількість кредитів ЄКТС	Кількість годин						Розподіл годин на тиждень за курсами і семестрами							
								Аудиторних					I курс		II курс		III курс		IV курс	
									у тому числі:				Семестри							
													1	2	3	4	5	6	7	8
													Кількість тижнів в семестрі							
		Екзамени	Заліки	Контрольні роботи, розрахунково-графічні роботи	Курсові роботи (проекти)		Загальний обсяг	Всього	лекції	лабораторні	практичні (семінарські)	Самостійна робота	12	12	12	12	12	12	12	6
І. Обов'язкові компоненти освітньої програми																				
ОК 1	Українська та зарубіжна культура		2			3	90	24	12	0	12	66		2						
ОК 2	Іноземна мова	4	1,2,3			12	360	192	0	0	192	168	4	4	4	4				
ОК 3	Ділова українська мова		3			3	90	24	0	0	24	66			2					
ОК 4	Філософія, політологія та соціологія	1,2				6	180	48	24	0	24	132	2	2						
ОК 5	Іноземна мова фахового спрямування	8	5,6,7			12	360	96	0	0	96	264					2	2	2	4
ОК 6	Фізичне виховання		1			3	90	24	0	0	24	66	2							
ОК 7	Вища математика	2	1	1Кт, 2Кт		12	360	120	60	0	60	240	4	6						
ОК 8	Дискретні структури	1				3	90	36	12	24	0	54	3							
ОК 9	Економіка для бізнесу		4			3	90	48	24	0	24	42				4				
ОК10	Комп'ютерна графіка і візуалізація		1	1РГР		3	90	36	12	24	0	54	3							
ОК11	Теорія ймовірностей та математична статистика	3		3Кт		3	90	36	12	0	24	54			3					
ОК12	Теорія алгоритмів	1				3	90	36	12	24	0	54	3							
ОК13	Алгоритмізація і програмування	1				6	180	48	24	24	0	132	4							
ОК14	WEB-технології	5				3	90	48	24	24	0	42					4			
ОК15	CAD/CAM/CAE системи легкої промисловості	8				3	90	48	24	24	0	42								8
ОК16	Технології розробки програмних продуктів	7				3	90	48	24	24	0	42							4	
ОК17	Фундаментальні принципи розробки програмного забезпечення	2,3		2РГР		12	360	144	48	96	0	216		6	6					
ОК18	Управління інформацією і інформаційна безпека	4,5				8	240	132	48	84	0	108				6	5			
	Курсова робота				5КР	1	30					30								
ОК19	Комп'ютерний аналіз	6				3	90	60	24	24	12	30						5		
ОК20	Управління IT-проектами		8			3	90	36	12	24	0	54								6
ОК21	Основні системні принципи та інтелектуальні системи	6,7	5			11	330	180	72	96	12	150					4	6	5	
	Курсова робота				7КР	1	30					30								
ОК22	Математичні методи дослідження операцій та прийняття рішень	5,6				6	180	120	48	72	0	60					4	6		
ОК23	Методи та системи штучного інтелекту	7				3	90	48	24	24		42							4	

ОК24	Архітектура комп'ютерів та розподілені системи	2,3,4		ЗРГР		9	270	168	72	96	0	102		5	4	5				
ОК25	Моделювання систем	8				3	90	36	12	24	0	54								6
ОК26	Геометричні моделі в САПР	7				3	90	48	24	24	0	42							4	
ОК27	Навчальна практика		2			6,0	180					180		Н						
ОК28	Виробнича практика		4,6			12,0	360					360				В		В		
ОК29	Переддипломна практика		**8**			**6.0**	**180**					**180**								**II**
ОК30	Підготовка та захист кваліфікаційної роботи					12,0	360					360								Д/А
Всього обов'язкових компонентів		**26**	**18**	**4**	**2**	**180**	**5400**	**1884**	**648**	**732**	**504**	**3516**	**25**	**25**	**19**	**19**	**19**	**19**	**19**	**24**
2. Вибіркові компоненти освітньої програми																				
ДВВ	Дисципліна 1		3			6	180	36	12		24	144			3					
ДВВ	Дисципліна 2		3			6	180	36	12		24	144			3					
ДВВ	Дисципліна 3		4			6	180	36	12		24	144				3				
ДВВ	Дисципліна 4		4			6	180	36	12		24	144				3				
ДВВ	Дисципліна 5		5			6	180	36	12		24	144					3			
ДВВ	Дисципліна 6		5			6	180	36	12		24	144					3			
ДВВ	Дисципліна 7		6			6	180	36	12		24	144						3		
ДВВ	Дисципліна 8		6			6	180	36	12		24	144						3		
ДВВ	Дисципліна 9		7			6	180	36	12		24	144							3	
ДВВ	Дисципліна 10		7			6	180	36	12		24	144							3	
Всього вибіркових компонентів		**0**	**10**	**0**	**0**	**60**	**1800**	**360**	**120**	**0**	**240**	**1440**	**0**	**0**	**6**	**6**	**6**	**6**	**6**	**0**
Разом освітніх компонентів		**27**	**28**	**6**	**2**	**240**	**7200**	**2244**	**768**	**732**	**744**	**4956**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**
Загальна кількість кредитів													**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Кількість годин на тиждень													**25**	**25**	**25**	**25**	**25**	**25**	**25**	**24**
Кількість екзаменів		**27**											**4**	**4**	**3**	4	**3**	**3**	**3**	3
Кількість заліків			**28**										**4**	**3**	**4**	3	**4**	**4**	**3**	3
Кількість розрахункових робіт				**3**									**1**	**1**	**1**					
Кількість курсових робіт/проєктів					**2**												**1**		**1**	

Схвалено Вченою радою факультету/інституту _____
протокол від "_ 17__ " __травня___2023 р. № 8___

Директор НМЦУПФ Олена ГРИГОРЕВСЬКА

Декан факультету МКТ Володимир ПАВЛЕНКО

Завідувач кафедри КН Володимир ЩЕРБАНЬ

Погоджено:
Проректор Людмила ГАНУЩАК-ЄФИМЕНКО

Гарант освітньої програми Оксана КОЛИСКО