

CURRICULUM CONTENT

training of the first (bachelor's) level:
by specialty

123

Computer Engineering

№ s/n	Name of the educational component	Total number				Department code
		ECTS credits	Hours	Semesters		
				exam.	offset	
1	2	3	4	5	6	7
1	Obligatory educational components	159,0	4770,0			66,25%
1.1	General training	62,0	1860,0			39%
GT 1	History and Culture of Ukraine	4,0	120,0	1		310
GT 2	Foreign Language in Professional Field	3,0	90,0	2		275
GT 3	Ukrainian Language (for professional purposes)	4,0	120,0		1,2	273
GT 4	Fundamentals of Humanitarian and Philosophical Knowledge in Professional Activity	4,0	120,0	2		307
GT 5	Physics	5,0	150,0	1		168
GT 6	Higher Mathematics p.1	6,0	180,0		1	324
GT 7	Higher Mathematics p.2	5,0	150,0	2		324
GT 8	Discrete Mathematics	6,0	180,0	2		326
GT 9	Probability Theory	4,0	120,0	3		326
GT 10	Computer Electronics	5,0	150,0	4		326
GT 11	Foreign Language for Professional Communications	4,0	120,0	8	7	273
GT	Physical education	12,0	360,0		1 - 6	302
1.2	Professional training	97,0	2910,0			61%
SP 1	Algebra for Programming	3,0	90,0	1		326
SP 2	Introduction to Specialty. Fundamentals of Computer Engineering	3,0	90,0	1		326
SP 3	Programming p.1	5,0	150,0	1		326
SP 4	Programming p.2	5,0	150,0	2		326
SP 5	Algorithms and Data Structures	5,0	150,0	3		326
SP 6	Database Organization and Design	4,0	120,0	3		326
SP 7	Computer Architecture	5,0	150,0	3		326
SP 8	Object-oriented Programming p.1	4,0	120,0		3	326
SP 9	Object-oriented Programming p.2	4,0	120,0	4		326
SP 10	System Programming	5,0	150,0	4		326
SP 11	Computer Graphics	4,0	120,0		4	326
SP 12	Database Development and Application	4,0	120,0	4		326
SP 13	System Software	5,0	150,0	5		326
SP 14	Computer Circuitry	4,0	120,0	5		326
SP 15	Computer Networks	5,0	150,0	5		326
SP 16	Microprocessors Architecture and Programming	4,0	120,0	5		326
SP 17	Signal and Image Processing	4,0	120,0	5		326
SP 18	Computer Game Technology Engineering	4,0	120,0	6		326
SP 19	Automatic Design Engineering	4,0	120,0	6		326
SP 20	Computer Systems	4,0	120,0	7		326
SP 21	Formal Languages, Grammar, and Automata	4,0	120,0	8		326
SP 22	Mobile Applications Design	4,0	120,0	8		326
SP 23	Fundamentals of Artificial Intelligence	4,0	120,0	8		326
2	Professional training	15,0	450,0			6,25%
PT 1	Familiarization Practice at "Innovation Campus"	3,0	90,0		2	326
PT 2	Project (practice)*	6,0	180,0		6	326
PT 3	Pre-graduation Practice*	6,0	180,0		8	326
3	Attestation*	6,0	180,0			2,50%
4	Optional educational components	60,0	1800,0			25,00%
4.1	Profile training	32,0	960,0			53%
4.1.1	Profiled discipline package 01 "Programming of mobile devices and computer systems"	32,0	960,0			
OP1.1	Fundamentals of Computer Mathematics	4,0	120,0	3		326
OP1.2	Systems Theory and Systems Analysis	4,0	120,0		4	326
OP1.3	Web programming	4,0	120,0		5	326
OP1.4	Reverse Programming	4,0	120,0	6		326
OP1.5	.NET Framework Software Technology	4,0	120,0	6		326
OP1.6	Foreign Language for Computer Systems Development	8,0	240,0		3-6	273
OP1.7	Parallel and Distributed Computing	4,0	120,0	7		326
4.1.2	Profiled discipline package 02 "Innovation Campus"	32,0	960,0			
OP2.1	Fundamentals of Computer Modeling	4,0	120,0	3		326
OP2.2	System Analysis	4,0	120,0		4	326
OP2.3	Fundamentals of Web Development	4,0	120,0		5	326
OP2.4	Cross-platform Technologies	4,0	120,0	6		326
OP2.5	Programms and Data Security Basics	4,0	120,0	6		326
OP2.6	Foreign Language for IT Project Management	8,0	240,0		3-6	273
OP2.7	Parallel and Cloud Computing Systems	4,0	120,0	7		326
4.2	Optional student disciplines of the profile preparation according to the list	16,0	480,0			27%
OPT 1	OPT 1	4,0	120,0		6	326
OPT 2	OPT 2	4,0	120,0		7	326
OPT 3	OPT 3	4,0	120,0		7	326
OPT 4	OPT 4	4,0	120,0		8	326
4.3	Educational components of the student's free choice from the university catalog	12,0	360,0			20%
OD 1	OD 1	4,0	120,0		7	
OD 2	OD 2	4,0	120,0		7	
OD 3	OD 3	4,0	120,0		7	
	Total for education period	240,0	7200,0			

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
SP 16	Microprocessors Architecture and Programming	5		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0									3,0	4,0							326
SP 17	Signal and Image Processing	5			4,0	120,0	48,0	32,0		16,0	72,0									3,0	4,0							326
SP 18	Computer Game Technology Engineering	6			4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					326
SP 19	Automatic Design Engineering	6			4,0	120,0	48,0	32,0	16,0		72,0											3,0	4,0					326
SP 20	Computer Systems	7			4,0	120,0	48,0	32,0	16,0		72,0													3,0	4,0			326
SP 21	Formal Languages, Grammar, and Automata	8			4,0	120,0	50,0	20,0		30,0	70,0															5,0	4,0	326
SP 22	Mobile Applications Design	8			4,0	120,0	50,0	20,0	30,0		70,0															5,0	4,0	326
SP 23	Fundamentals of Artificial Intelligence	8		C	4,0	120,0	50,0	20,0	30,0		70,0															5,0	4,0	326
2	Professional training				15,0	450,0					450,0				3,0							6,0					6,0	
PT 1	Familiarization Practice at "Innovation Campus"		2		3,0	90,0					90,0				3,0													326
PT 2	Project (practice)*		6		6,0	180,0					180,0											6,0						326
PT 3	Pre-graduation Practice*		8		6,0	180,0					180,0															6,0		326
3	Attestation*				6,0	180,0					180,0																6,0	
4	Optional educational components				60,0	1800,0	754,0	208,0	192,0	160,0	1046,0					5,0	6,0	5,0	6,0	5,0	6,0	11,0	14,0	18,0	24,0	5,0	4,0	
4.1	Profile training				32,0	960,0	416,0	144,0	112,0	160,0	544,0					5,0	6,0	5,0	6,0	5,0	6,0	8,0	10,0	3,0	4,0			
4.1.1	Profiled discipline package 01 "Programming of mobile devices and computer systems"				32,0	960,0	416,0	144,0	112,0	160,0	544,0					5,0	6,0	5,0	6,0	5,0	6,0	8,0	10,0	3,0	4,0			
OP1.1	Fundamentals of Computer Mathematics	3		C	4,0	120,0	48,0	16,0	32,0		72,0					3,0	4,0											326
OP1.2	Systems Theory and Systems Analysis		4		4,0	120,0	48,0	32,0		16,0	72,0							3,0	4,0									326
OP1.3	Web programming		5		4,0	120,0	48,0	32,0	16,0		72,0									3,0	4,0							326
OP1.4	Reverse Programming	6			4,0	120,0	48,0	32,0	16,0		72,0											3,0	4,0					326
OP1.5	.NET Framework Software Technology	6			4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					326
OP1.6	Foreign Language for Computer Systems Development		3-6		8,0	240,0	128,0			128,0	112,0					2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0					273
OP1.7	Parallel and Distributed Computing	7			4,0	120,0	48,0	16,0	16,0	16,0	72,0													3,0	4,0			326
4.1.2	Profiled discipline package 02 "Innovation Campus"				32,0	960,0	416,0	128,0	112,0	176,0	544,0					5,0	6,0	5,0	6,0	5,0	6,0	8,0	10,0	3,0	4,0			
OP2.1	Fundamentals of Computer Modeling	3		C	4,0	120,0	48,0	16,0	32,0		72,0					3,0	4,0											326
OP2.2	System Analysis		4		4,0	120,0	48,0	32,0		16,0	72,0							3,0	4,0									326
OP2.3	Fundamentals of Web Development		5		4,0	120,0	48,0	32,0	16,0		72,0									3,0	4,0							326
OP2.4	Cross-platform Technologies	6			4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					326
OP2.5	Programms and Data Security Basics	6			4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					326
OP2.6	Foreign Language for IT Project Management		3-6		8,0	240,0	128,0			128,0	112,0					2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0					273
OP2.7	Parallel and Cloud Computing Systems	7			4,0	120,0	48,0	16,0		32,0	72,0													3,0	4,0			326

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														
4.2	Optional student disciplines of the profile preparation according to the list				16,0	480,0	194,0				286,0											3,0	4,0	6,0	8,0	5,0	4,0															
OPT 1	OPT 1		6	C	4,0	120,0	48,0	32,0	16,0		72,0											3,0	4,0					326														
OPT 2	OPT 2		7		4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			326														
OPT 3	OPT 3		7	C	4,0	120,0	48,0	32,0		16,0	72,0												3,0	4,0				326														
OPT 4	OPT 4		8		4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	326														
4.3	Educational components of the student's free choice from the university catalog				12,0	360,0	144,0	64,0	80,0		216,0													9,0	12,0																	
OD 1	OD 1		7		4,0	120,0	48,0	16,0	32,0		72,0													3,0	4,0																	
OD 2	OD 2		7		4,0	120,0	48,0	16,0	32,0		72,0													3,0	4,0																	
OD 3	OD 3		7		4,0	120,0	48,0	32,0	16,0		72,0													3,0	4,0																	
Total for education period					240,0	7200,0	2794,0	1040,0	616,0	944,0	4406,0	25,0	30,0	25,0	30,0	24,0	30,0	24,0	30,0	24,0	30,0	19,0	30,0	23,0	30,0	22,0	30,0															
Hours per week												25,0	30,0	25,0	30,0	24,0	30,0	24,0	30,0	24,0	30,0	19,0	30,0	23,0	30,0	22,0																
Number of exams												5	5	5	4	5	4	2	4																							
Number of tests												3	3	3	4	3	4	6	3																							
Number of course projects (works)															1	1	1																									
Numbers of disciplines per semester												8	8	8	8	8	8	8	7																							

Individual tasks	
C	Calculated task
CG	Calculated and graphic task
R	Report
CP	Course project
CW	Course work

Approved by the Academic Council of NTU "KhPI"
Protocol №6 from 05.07.2024

Vice-rector of Scientific-and-Pedagogical Work



Hennadii KHRYPUNOV
signature

Head of the educational program
"Modern programming, mobile devices
and computer games"



Oleksandr ZAKOVOROTNYI
signature

Director of the Educational and Scientific
Institute of Computer Sciences and
Information Technologies

name of the institute



Mykhailo GODLEVSKY
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Head of the Department "Computer
Engineering and Programming"

institute's department name



Oleksandr ZAKOVOROTNYI
signature

