



## CURRICULUM CONTENT

Master's degree program:

by specialty

123

Computer Engineering

№ 3/n	Name of the educational component	Total number				Department code
		ECTS credits	Hours	Semesters		
				exam.	offset	
1	2	3	4	5	6	7
<b>1</b>	<b>Mandatory educational components</b>	<b>40,0</b>	<b>1200,0</b>			<b>44%</b>
<b>1.1</b>	<b>General preparation</b>	<b>9,0</b>	<b>270,0</b>			<b>10%</b>
GT 1	Foreign Language in Professional Field	3,0	90,0		1	275
GT 2	Innovative Entrepreneurship and Startup Project Management	3,0	90,0		1	202
GT 3	Intellectual Property	3,0	90,0		1	202
<b>1.2</b>	<b>Special (professional) training</b>	<b>31,0</b>	<b>930,0</b>			<b>34%</b>
ST 1	Modern Technologies of Defensive Programming	5,0	150,0	1		326
ST 2	Tools and Algorithms for Decision Making	5,0	150,0	1		326
ST 3	Process optimization in multi-service systems and networks	5,0	150,0	1		326
ST 4	Programming for Global Networks	6,0	180,0	1		326
ST 5	Fundamentals of Neurocomputing	5,0	150,0	2		326
ST 6	Fundamentals of Scientific Researches	5,0	150,0	2		326
<b>2</b>	<b>Practical training</b>	<b>11,0</b>	<b>330,0</b>			<b>12%</b>
PT 1	Pre-graduation Practice*	11,0	330,0			326
<b>3</b>	<b>Certification</b>	<b>11,0</b>	<b>330,0</b>			<b>12%</b>
<b>4</b>	<b>Elective educational components</b>	<b>28,0</b>	<b>840,0</b>			<b>31%</b>
<b>4.1</b>	<b>Specialized training</b>	<b>12,0</b>	<b>360,0</b>			<b>13%</b>
<b>4.1.1</b>	<b>Profiled package of educational components 01 "Computer Systems and Networks"</b>	<b>12,0</b>	<b>360,0</b>			
OP1.1	Hardware Facilities of Local and Global Networks	4,0	120,0	2		326
OP1.2	Microcontroller Devices Engineering	4,0	120,0	2		326
OP1.3	Corporate Networks Designing	4,0	120,0	2		326
<b>4.1.2</b>	<b>Profiled package of educational components 02 "System Programming"</b>	<b>12,0</b>	<b>360,0</b>			
OP2.1	Corporate Networking Programming	4,0	120,0	2		326
OP2.2	Compiler Design Theory	4,0	120,0	2		326
OP2.3	Machine Learning	4,0	120,0	2		326
<b>4.1.3</b>	<b>Profiled package of educational components 03 "Specialized Computer Systems"</b>	<b>12,0</b>	<b>360,0</b>			
OP3.1	Corporate Networking Software	4,0	120,0	2		326
OP3.2	Computer Game Content Modeling and Optimization	4,0	120,0	2		326
OP3.3	Methods and Means of Complex Dynamic Objects Modeling	4,0	120,0	2		326
<b>4.2</b>	<b>Educational components of free choice of professional training according to the list (list is attached)</b>	<b>8,0</b>	<b>240,0</b>			<b>9%</b>
OPT 1	OPT 1	4,0	120,0		2	326
OPT 2	OPT 2	4,0	120,0		2	326
<b>4.3</b>	<b>Educational components of free choice of general training according to the list (list is attached)</b>	<b>8,0</b>	<b>240,0</b>			<b>9%</b>
OGT 1	Discipline 1	4,0	120,0		3	
OGT 2	Discipline 2	4,0	120,0		3	
	<b>Total number for the training period</b>	<b>90,0</b>	<b>2700,0</b>			

V. EDUCATION PROCESS PLAN

№ 3П	Name of discipline	Semester distribution				Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester						Department
		Exams	Tests	Individual tasks	Total amount		Classroom				Independent work	1 course		2 course		3			
							Total	including				Semesters		Semesters		Semesters			
								Lectures	Laboratory works	Practical studies		1	2	1	2	1	2	3	
		Number of weeks in the semester						20		20		16							
		Classroom hours	ECTS credits	Classroom hours	ECTS credits		Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
<b>1</b>	<b>Mandatory educational components</b>				<b>40,0</b>	<b>1200,0</b>	<b>480,0</b>	<b>240,0</b>	<b>96,0</b>	<b>144,0</b>	<b>720,0</b>	<b>22,0</b>	<b>30,0</b>	<b>8,0</b>	<b>10,0</b>				
<b>1.1</b>	<b>General preparation</b>				<b>9,0</b>	<b>270,0</b>	<b>96,0</b>	<b>48,0</b>		<b>48,0</b>	<b>174,0</b>	<b>6,0</b>	<b>9,0</b>						
GT 1	Foreign Language in Professional Field		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0					275	
GT 2	Innovative Entrepreneurship and Startup Project Management		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0					202	
GT 3	Intellectual Property		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0					202	
<b>1.2</b>	<b>Special (professional) training</b>				<b>31,0</b>	<b>930,0</b>	<b>384,0</b>	<b>192,0</b>	<b>96,0</b>	<b>96,0</b>	<b>546,0</b>	<b>16,0</b>	<b>21,0</b>	<b>8,0</b>	<b>10,0</b>				
ST 1	Modern Technologies of Defensive Programming	1			5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					326	
ST 2	Tools and Algorithms for Decision Making	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					326	
ST 3	Process optimization in multi-service systems and networks	1			5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					326	
ST 4	Programming for Global Networks	1		CP	6,0	180,0	64,0	32,0	32,0		116,0	4,0	6,0					326	
ST 5	Fundamentals of Neurocomputing	2		CW	5,0	150,0	64,0	32,0	16,0	16,0	86,0			4,0	5,0			326	
ST 6	Fundamentals of Scientific Researches	2		R	5,0	150,0	64,0	32,0		32,0	86,0			4,0	5,0			326	
<b>2</b>	<b>Practical training</b>				<b>11,0</b>	<b>330,0</b>					<b>330,0</b>							<b>11,0</b>	
PT 1	Pre-graduation Practice*				11,0	330,0					330,0							11,0	
<b>3</b>	<b>Certification</b>				<b>11,0</b>	<b>330,0</b>					<b>330,0</b>							<b>11,0</b>	
<b>4</b>	<b>Elective educational components</b>				<b>28,0</b>	<b>840,0</b>	<b>336,0</b>	<b>224,0</b>	<b>64,0</b>	<b>48,0</b>	<b>504,0</b>			<b>15,0</b>	<b>20,0</b>	<b>24,0</b>	<b>8,0</b>		
<b>4.1</b>	<b>Specialized training</b>				<b>12,0</b>	<b>360,0</b>	<b>144,0</b>	<b>96,0</b>	<b>32,0</b>	<b>16,0</b>	<b>216,0</b>			<b>9,0</b>	<b>12,0</b>				
<b>4.1.1</b>	<b>Profiled package of educational components 01 "Computer Systems and Networks"</b>				<b>12,0</b>	<b>360,0</b>	<b>144,0</b>	<b>96,0</b>	<b>32,0</b>	<b>16,0</b>	<b>216,0</b>			<b>9,0</b>	<b>12,0</b>				
OP1.1	Hardware Facilities of Local and Global Networks	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			326	
OP1.2	Microcontroller Devices Engineering	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
OP1.3	Corporate Networks Designing	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
<b>4.1.2</b>	<b>Profiled package of educational components 02 "System Programming"</b>				<b>12,0</b>	<b>360,0</b>	<b>144,0</b>	<b>96,0</b>	<b>48,0</b>		<b>216,0</b>			<b>9,0</b>	<b>12,0</b>				
OP2.1	Corporate Networking Programming	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
OP2.2	Compiler Design Theory	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
OP2.3	Machine Learning	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
<b>4.1.3</b>	<b>Profiled package of educational components 03 "Specialized Computer Systems"</b>				<b>12,0</b>	<b>360,0</b>	<b>144,0</b>	<b>96,0</b>	<b>48,0</b>		<b>216,0</b>			<b>9,0</b>	<b>12,0</b>				
OP3.1	Corporate Networking Software	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
OP3.2	Computer Game Content Modeling and Optimization	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
OP3.3	Methods and Means of Complex Dynamic Objects Modeling	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326	
<b>4.2</b>	<b>Educational components of free choice of professional training according to the list (list is attached)</b>				<b>8,0</b>	<b>240,0</b>	<b>96,0</b>	<b>64,0</b>	<b>32,0</b>		<b>144,0</b>			<b>6,0</b>	<b>8,0</b>			<b>978,0</b>	
OPT 1	<b>OPT 1</b>		2		4,0	120,0	48,0	32,0	16,0		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	29
OPT 2	<b>OPT 2</b>		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0			326
4.3	<b>Educational components of free choice of general training according to the list (list is attached)</b>				8,0	240,0	96,0	64,0		32,0	144,0					24,0	8,0	
OGT 1	<b>Discipline 1</b>		3	R	4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0	
OGT 2	<b>Discipline 2</b>		3	R	4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0	
<b>Total number for the training period</b>					<b>90,0</b>	<b>2700,0</b>	<b>816,0</b>	<b>464,0</b>	<b>160,0</b>	<b>192,0</b>	<b>1884,0</b>	<b>22,0</b>	<b>30,0</b>	<b>23,0</b>	<b>30,0</b>	<b>24,0</b>	<b>30,0</b>	
<b>Hours per week</b>												22,0	23,0	24,0				
<b>Number of exams</b>												4	5					
<b>Number of tests</b>												3	1	4				
<b>Number of course projects (works)</b>												1						
<b>Numbers of disciplines per semester</b>												7,0	7,0	3,0				

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

Approved by the Academic Council of NTU "KhPI"

PROTOCOL №5 from 24.05.2024

Vice-rector of Scientific-and-Pedagogical Work

  
signature  
Gennadiy KHRYPUNOV

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

  
signature  
Svitlana GAVRYLENKO

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

name of the institute

  
signature  
Mykhailo GODLEVSKY

Head of the Department  
"Computer Engineering and Programming"

institute's department name

  
signature  
Oleksandr ZAKOVOROTNYI

## 1 - List of optional student disciplines of the profile training

№ nn	Name of academic discipline	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester								Department
		Exams	Tests	Individual tasks		Total amount	Classroom				Independent work	1 course				2 course				
							Total	including				Semesters		Semesters						
		Lectures	Laboratory works	Practical studies				1	2	3										
		Number of weeks in the semester								20		20		16						
		Classroom hours	ECTS credits	Classroom hours		ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits										
13	14	15	16	17	18	19	20													
29																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29
<b>4.2</b>	<b>Educational components of free choice of professional training</b>																			
OPT 1	Control and Diagnosis for Computer Systems		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326
OPT 1	Program Design for Computer Systems and Networks Diagnosis		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326
OPT 1	Design of Computer Diagnostic Systems		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326
OPT 2	Application of Multi-valued Logic in Computer Systems		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326
OPT 2	Software Design of Microcontroller Devices		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326
OPT 2	Specialized Computer Systems		2		4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					326

