

V. EDUCATIONAL PROCESS PLAN

Code in accordance with the EPP	Name of academic discipline	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per week and ECTS credits by semester								Department		
		Exams	Tests	Individual tasks		Total amount	Classroom			Independent work	1 course		2 course		Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours		ECTS credits	
							Total	including			Semester		Semester									
								Lectures	laboratory		Practical studies	1	2	3								
												Number of weeks in the semester										
20	20	10																				
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29		
1	Obligatory educational				67.0	2010.0	596.0	230.0	190.0	176.0	1414.0	12.8	20.0	12.0	21.0	10.0	26.0					
1.1	General training				10.00	300.00	112.00			112.00	188.00	2.80	5.00	2.00	2.00	1.60	3.00					
GT1	Foreign language for professional		1-2		4.0	120.0	80.0			80.0	40.0	2.0	2.0	2.0	2.0					275		
GT2	Intellectual Property		1	R	3.0	90.0	16.0			16.0	74.0	0.8	3.0							202		
GT3	Innovative entrepreneurship and startup project management		3	R	3.0	90.0	16.0			16.0	74.0				1.6	3				321		
1.2	Special (professional) training				39.00	1170.00	468.00	230.00	190.00	48.00	702.00	10.00	14.00	10.00	17.00	6.80	8.00					
PT1	Business analysis methods for managing requirements for intelligent	1		CW	4.0	120.0	60.0	40.0		20.0	60.0	3.0	4.0							321		
PT2	Management of intelligent systems development projects	1			3.0	90.0	40.0	20.0	20.0		50.0	2.0	3.0							321		
PT3	Basics of computational intelligence	1			3.0	90.0	40.0	20.0	20.0		50.0	2.0	3.0							321		
PT4	Methods of intelligent data analysis	1			4.0	120.0	60.0	20.0	40.0		60.0	3.0	4.0							321		
PT5	Workshop "Intelligent Systems"		3		4.0	120.0	28.0			28.0	92.0				2.8	4.0				321		
PT6	Mathematical models of complex systems and decision support	2			4.0	120.0	60.0	40.0	20.0		60.0			3.0	4.0					321		
PT7	Models of artificial intelligence	3			4.0	120.0	40.0	20.0	20.0		80.0				4.0	4.0				321		
PT8	Decentralized applications and blockchain technologies	2			3.0	90.0	40.0	20.0	20.0		50.0			2.0	3.0					321		
PT9	Life cycle management of intelligent		2		3.0	90.0	20.0	10.0	10.0		70.0			1.0	3.0					321		
PT10	Databases and knowledge	2			4.0	120.0	40.0	20.0	20.0		80.0			2.0	4.0					321		
PT11	Architecture and software design of intelligent systems	2			3.0	90.0	40.0	20.0	20.0		50.0			2.0	3.0					321		
1.3	Scientific training				18.00	540.00	16.00			16.00	524.00		1.00		2.00	1.60	15.00					
ST1	Basics of the scientific research		3	R	3.0	90.0	16.0			16.0	74.0				1.6	3.0				321		
ST2	R&D		2		1.0	30.0					30.0			1.0						321		
ST3	Pre-diploma practice		3		5.0	150.0					150.0		1.0	1.0		3.0				321		
	Attestation				9.0	270.0					270.0					9.0				321		
2	Optional educational components				23.0	690.0	250.0	110.0		140.0	440.0	4.5	10.0	6.0	9.0	4.0	4.0					
2.1	Profile training				15.00	450.00	130.00	50.00		80.00	320.00	4.50	10.00	2.00	5.00							
2.1.1	Profiled discipline package 01 «Business Intelligence»				15.00	450.00	130.00	50.00		80.00	320.00	4.50	10.00	2.00	5.00							
OP 1.1	BI technologies		1		5.0	150.0	40.0	20.0		20.0	110.0	2.0	5.0							321		
OP 1.2	Data Mining Tools		1		5.0	150.0	50.0	20.0		30.0	100.0	2.5	5.0							321		
OP 1.3	Data visualization tools		2		5.0	150.0	40.0	10.0		30.0	110.0			2.0	5.0					321		
2.1.2	Profiled discipline package 02 «Computational intelligence»				15.00	450.00	130.00	50.00		80.00	320.00	4.50	10.00	2.00	5.00							
OP 2.1	Evolutionary technologies in artificial intelligence systems		1		5.0	150.0	40.0	20.0		20.0	110.0	2.0	5.0							321		
OP 2.2	Development of neural network models for artificial intelligence tasks		1		5.0	150.0	50.0	20.0		30.0	100.0	2.5	5.0							321		
OP 2.3	Models and methods of soft		2		5.0	150.0	40.0	10.0		30.0	110.0			2.0	5.0					321		
2.1.3	Profiled discipline package 03 «Machine Learning»				15.00	450.00	130.00	50.00		80.00	320.00	4.50	10.00	2.00	5.00							
OP 3.1	Machine Learning methods		1		5.0	150.0	40.0	20.0		20.0	110.0	2.0	5.0							321		
OP 3.2	Reinforcement learning		1		5.0	150.0	50.0	20.0		30.0	100.0	2.5	5.0							321		
OP 3.3	Machine Learning models and		2		5.0	150.0	40.0	10.0		30.0	110.0			2.0	5.0					321		

2.2	Optional disciplines of profile training (the list is attached)		2-3		8.00	240.00	120.00	60.00		60.00	120.00			4.00	4.00	4.00	4.00				
Total for education period					90.0	2700.0	846.0	340.0	190.0	316.0	1854.0	17.3	30.0	18.0	30.0	14.0	30.0				
Hours per week												17.3		18.0		14.0					
Number of exams																					
Number of credits																					
Number of course projects (papers)																					
Number of disciplines in the semester												8.0		5.0		5.0					

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

Approved by the Academic Council of NTU "KhPI"
protocol No. 5 from 02.06.2023

Vice-rector of Scientific-and-Pedagogical Work

_____ **Ruslan MYGUSHCHENKO**
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Head of the educational program Computer Science and Intelligent Systems

_____ **Oleksandr SHMATKO**
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Director of Educational and Scientific Institute of Computer Science and Information Technoloav

_____ **Mykhailo GODLEVSKYI**
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Head of the Department of Software Engineering and Management Intelligent Technologies

_____ **Igor HAMAYUN**
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CONTENTS OF THE CURRICULUM

master's training:

specialty

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Software engineering

Number in order	Discipline title	Total amount				Department code
		ECTS credits	Hours	Semesters		
				Exam	Test	
1	2	3	4	5	6	7
1	Obligatory educational components	67.0	2010.0			55.8%
1.1	General training	10.0	300.0			11.1%
GT1	Foreign language for professional purposes	4.0	120.0		1-2	275
GT2	Intellectual Property	3.0	90.0		1	202
GT3	Innovative entrepreneurship and startup project management	3.0	90.0		3	321
1.2	Special (professional) training	39.0	1170.0			43.3%
PT1	Business analysis methods for managing requirements for intelligent systems	4.0	120.0	1		321
PT2	Management of intelligent systems development projects	3.0	90.0	1		321
PT3	Basics of computational intelligence	3.0	90.0	1		321
PT4	Methods of intelligent data analysis	3.0	90.0	1		321
PT5	Workshop "Intelligent Systems"	4.0	120.0			321
PT6	Mathematical models of complex systems and decision support	4.0	120.0	2		321
PT7	Decentralized applications and blockchain technologies	3.0	90.0	3	3	321
PT8	Decentralized applications and blockchain technologies	3.0	90.0	2		321
PT9	Life cycle management of intelligent systems	3.0	90.0			321
PT10	Databases and knowledge	4.0	120.0	2		321
PT11	Architecture and software design of intelligent systems				2	321
1.3	Scientific training	18.0	540.0			15%
ST1	Basics of the scientific research	3.0	90.0		3	321
ST2	R&D	2.0	60.0			275
ST3	Pre-diploma practice	3.0	90.0		2	321
		13.0	390.0		1-3	321
	Attestation	9.0	270.0			321
2	Optional educational components	23.0	690.0			25.6%
2.1	Professional training	12.0	360.0			10%
2.1.1	Profiled discipline package 01 «Business Intelligence»	15.0	450.0			
OP 1.1	BI technologies	5.0	150.0		1	321
OP 1.2	Data Mining Tools	5.0	150.0		1	321
OP 1.3	Data visualization tools	5.0	150.0		2	321
2.1.2	Profiled package of disciplines 02 "Cloud Computing"	15.0	450.0			
OP 2.1	Evolutionary technologies in artificial intelligence systems	5.0	150.0		1	321
OP 2.2	Development of neural network models for artificial intelligence tasks	5.0	150.0		1	321
OP 2.3	Models and methods of soft computing	5.0	150.0		2	321
2.1.3	Profiled package of disciplines 03 "Artificial intelligence and machine Learning"	15.0	450.0			
OP 3.1	Machine Learning methods	5.0	150.0		1	321
OP 3.2	Reinforcement learning	5.0	150.0		1	321
OP 3.3	Machine Learning models and frameworks	5.0	150.0		2	321
2.2	Disciplines of free choice of specialized training according to the list (the list is attached)	8.0	240.0			
	The total amount for the training period	90.0	2700.0			