

V. EDUCATION PROCESS PLAN

Code in accordance with the EF	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	I course				II course				III course				IV course							
							Total	including			Semesters																			
		Lectures	Laboratory works	Practical studies				1	2		3	4	5	6	7	8	Number of weeks in the semester													
		20		20		20		20		20		20		20		20		20		20										
		Classroom in hours	ECTS credits	Classroom in hours		ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits								
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		
1	Obligatory educational components				180.0	5400.0	2270.0	822.0	638.0	810.0	3130.0	28.0	30.0	26.0	30.0	20.0	23.0	17.0	18.0	15.0	18.0	16.0	21.0	10.0	10.0	21.0	30.0			
1.1	General training				48.0	1440.0	752.0	152.0		600.0	688.0	18.0	21.0	12.0	13.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0	2.0		
GT 1	History and culture of Ukraine	1		R	3.0	90.0	32.0	16.0		16.0	58.0	2.0	3.0																310	
GT 2	Ukrainian as a foreign language	6	3-5		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	2.0					273	
GT 3	The language of vocational training	2	1		9.0	270.0	124.0			124.0	146.0	6.0	6.0	2.0	3.0														275	
GT 4	Foreign language for professional communication	8	6-7		6.0	180.0	168.0			168.0	12.0													4.0	2.0	4.0	2.0	4.0	2.0	275
GT 5	Fundamentals of humanitarian and philosophical knowledge in professional activity	2		R	3.0	90.0	28.0	14.0		14.0	62.0				2.0	3.0													307	
GT 6	Higher Mathematics	1-2		C	11.0	330.0	164.0	90.0		74.0	166.0	5.0	6.0	6.0	5.0														324	
GT 7	Physics	1		CG	4.0	120.0	48.0	32.0		16.0	72.0	3.0	4.0																168	
GT 8	Physical education		1 - 2		4.0	120.0	60.0			60.0	60.0	2.0	2.0	2.0	2.0														302	
1.2	Professional training				132.0	3960.0	1518.0	670.0	638.0	210.0	2442.0	10.0	9.0	14.0	17.0	18.0	21.0	15.0	16.0	13.0	16.0	10.0	17.0	6.0	8.0	17.0	28.0			
PT 1	Fundamentals of programming	1-2		CW	11.0	330.0	180.0	90.0	90.0		150.0	6.0	5.0	6.0	6.0														321	
PT 2	Fundamentals of software engineering		1		4.0	120.0	64.0	32.0	32.0		56.0	4.0	4.0																321	
PT 3	Computer architecture and operating systems		2	C	4.0	120.0	56.0	28.0	28.0		64.0			4.0	4.0														321	
PT 4	Theory of algorithms		2	C	4.0	120.0	56.0	28.0	28.0		64.0			4.0	4.0														321	
PT 5	Probability theory and mathematical statistics	3		C	5.0	150.0	64.0	32.0	32.0		86.0				4.0	5.0													321	
PT 6	Data models and structures	3			4.0	120.0	48.0	16.0	32.0		72.0				3.0	4.0													321	
PT 7	Object-oriented programming	3		CW	4.0	120.0	64.0	32.0	32.0		56.0				4.0	4.0													321	
PT 8	Computer networks		3		3.0	90.0	48.0	16.0	32.0		42.0				3.0	3.0													321	
PT 9	Mathematical modeling and systems analysis		3		5.0	150.0	64.0	32.0		32.0	86.0				4.0	5.0													321	
PT 10	Computer mathematics	5-6	4	CW, C	13.0	390.0	176.0	80.0		96.0	214.0						4.0	4.0	4.0	5.0	3.0	4.0							321	
PT 11	Fundamentals of web development	4			4.0	120.0	64.0	32.0	32.0		56.0				4.0	4.0													321	
PT 12	Database design and development	4		CW	4.0	120.0	64.0	32.0	32.0		56.0				4.0	4.0													321	
PT 13	Software requirements engineering		4	C	4.0	120.0	48.0	16.0	32.0		72.0				3.0	4.0													321	
PT 14	CI/CD		5		3.0	90.0	48.0	16.0	32.0		42.0							3.0	3.0										321	
PT 15	Architecture and Design of Software	5-6		CP	8.0	240.0	112.0	48.0	64.0		128.0						3.0	4.0	4.0	4.0									321	
PT 16	Software quality, testing and support	5			4.0	120.0	48.0	16.0	32.0		72.0						3.0	4.0											321	
PT 17	Fundamentals of cybersecurity	6			3.0	90.0	48.0	16.0	32.0		42.0									3.0	3.0								321	
PT 18	Decision making theory	7			4.0	120.0	64.0	48.0	16.0		56.0												4.0	4.0					321	
PT 19	Scientific and practical training seminar "Software engineering"		7-8	CW, CP	7.0	210.0	52.0			52.0	158.0												2.0	4.0	2.0	3.0		321		

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
PT 20	Software modeling and analysis	8			4.0	120.0	40.0	20.0	20.0		80.0															4.0	4.0	321
PT 21	Practical seminar on mathematical methods in software engineering		8	C	3.0	90.0	30.0			30.0	60.0															3.0	3.0	321
PT 22	Artificial intelligence systems		8		3.0	90.0	40.0	20.0	20.0		50.0															4.0	3.0	321
PT 23	Fundamentals of software project management	8			3.0	90.0	40.0	20.0	20.0		50.0															4.0	3.0	321
PT 24	Introductory practice at the "Innovation Campus"		2		3.0	90.0					90.0				3.0													321
PT 25	Project (practice)		6		6.0	180.0					180.0												6.0					321
PT 26	Pre-graduation Practice		8		6.0	180.0					180.0																6.0	
PT27	Attestation*				6.0	180.0					180.0																6.0	
2	Optional educational components				60.0	1800.0	800.0	144.0	128.0	192.0	1000.0					8.0	7.0	11.0	12.0	11.0	12.0	7.0	9.0	13.0	20.0			
2.1	Profile training				33.0	990.0	464.0	144.0	128.0	192.0	526.0					8.0	7.0	7.0	7.0	7.0	7.0	3.0	4.0	4.0	8.0			
2.1.1	Profiled discipline package 01 "Research and Development"				33.0	990.0	464.0	144.0	128.0	192.0	526.0					8.0	7.0	7.0	7.0	7.0	7.0	3.0	4.0	4.0	8.0			
OP1.1	Foreign language for scientific research	5	3-4		9.0	270.0	192.0			192.0	78.0					4.0	3.0	4.0	3.0	4.0	3.0							275
OP1.2	Data collection and preparation		3		4.0	120.0	64.0	32.0	32.0		56.0					4.0	4.0											321
OP1.3	Probabilistic and statistical models		4		4.0	120.0	48.0	16.0	32.0		72.0							3.0	4.0									321
OP1.4	Planning of the experiment		5		4.0	120.0	48.0	32.0	16.0		72.0										3.0	4.0						321
OP1.5	Complex systems modeling methods		6		4.0	120.0	48.0	32.0	16.0		72.0												3.0	4.0				321
OP1.6	Fuzzy logic and fuzzy systems		7		4.0	120.0	32.0	16.0	16.0		88.0														2.0	4.0		321
OP1.7	Fundamentals of Machine Learning		7		4.0	120.0	32.0	16.0	16.0		88.0														2.0	4.0		321
2.1.2	Profiled discipline package 02 "Software Development and Startup"				33.0	990.0	464.0	144.0	128.0	192.0	526.0					8.0	7.0	7.0	7.0	7.0	7.0	3.0	4.0	4.0	8.0			
OP2.1	Foreign language for business communications	5	3-4		9.0	270.0	192.0			192.0	78.0					4.0	3.0	4.0	3.0	4.0	3.0							275
OP2.2	Fundamentals of entrepreneurship		3		4.0	120.0	64.0	32.0	32.0		56.0					4.0	4.0											321
OP2.3	Business modeling		4		4.0	120.0	48.0	16.0	32.0		72.0							3.0	4.0									321
OP2.4	Fundamentals of prototyping		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4.0							321
OP2.5	Startup business planning		6		4.0	120.0	48.0	32.0	16.0		72.0											3.0	4.0					321
OP2.6	Internet marketing		7		4.0	120.0	32.0	16.0	16.0		88.0														2.0	4.0		321
OP2.7	Startup business analytics		7		4.0	120.0	32.0	16.0	16.0		88.0														2.0	4.0		321
2.1.3	Profiled discipline package 03 "Innovation Campus"				33.0	990.0	464.0	144.0	128.0	192.0	526.0					8.0	7.0	7.0	7.0	7.0	7.0	3.0	4.0	4.0	8.0			
OP3.1	Foreign language for the development of corporate information systems	5	3-4		9.0	270.0	192.0			192.0	78.0					4.0	3.0	4.0	3.0	4.0	3.0							275
OP3.2	Development of corporate information systems (part 1)		3		4.0	120.0	64.0	32.0	32.0		56.0					4.0	4.0											329
OP3.3	Development of corporate information systems (part 2)		4		4.0	120.0	48.0	16.0	32.0		72.0							3.0	4.0									329
OP3.4	Databases for corporate information systems		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4.0							329
OP3.5	Architecture of corporate information systems		6		4.0	120.0	48.0	32.0	16.0		72.0											3.0	4.0					329
OP3.6	Project workshop		7		4.0	120.0	32.0	16.0	16.0		88.0														2.0	4.0		329

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												
OP3.7	IT project teams formation and development		7		4.0	120.0	32.0	16.0	16.0		88.0													2.0	4.0			329												
2.2	Optional student disciplines of the profile preparation according to the list		4-6		15.0	450.0	192.0				258.0							4.0	5.0	4.0	5.0	4.0	5.0																	
2.3	Optional student disciplines from the general university catalog of disciplines				12.0	360.0	144.0				216.0													9.0	12.0															
OD1	Discipline 1		7		4.0	120.0	48.0				72.0													3.0	4.0															
OD2	Discipline 2		7		4.0	120.0	48.0				72.0													3.0	4.0															
OD3	Discipline 3		7		4.0	120.0	48.0				72.0													3.0	4.0															
Total for education period					240.0	7200.0	3070.0				4130.0	28.0	30.0	26.0	30.0	28.0	30.0	28.0	30.0	26.0	30.0	23.0	30.0	23.0	30.0	21.0	30.0													
Hours per week												28.0	26.0	28.0	28.0	26.0	23.0	23.0	21.0																					
Number of exams																																								
Number of tests																																								
Number of course projects (works)																																								
Numbers of disciplines per semester												7	7	8	7	7	6	8	6																					

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 №_5_ from _02.06.2023_

Vice-rector of Scientific-and-Pedagogical Work

 Signature Full name
Ruslan MYGUSHCHENKO

Head of the educational program
 Computer Science and Intelligent
 Systems

 Signature Full name
Andrii KOPP

Director of Educational and Scientific Institute
 of Computer Science and Information
 Technology

name of the Institute

 Signature Full name
Mykhailo GODLEVSKYI

Head of the Department of Software
 Engineering and Management
 Intelligent Technologies

name of department

 Signature Full name
Igor HAMAYUN

* Practices and attestations are carried out by graduating

List of optional student disciplines of the profile training

Code in accordance with the EPF	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	I course		II course		III course		IV course												
							Total	including			Semesters																		
		Lectures	Laboratory works	Practical studies		20		20	20	20	20	20	20	20	20	20	20	20	20										
							1													2	3	4	5		6	7	8		
		Number of weeks in the semester																											
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	
2.2	Optional student disciplines of the profile training																												
OPT1	Fundamentals of Python programming				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT2	Advanced Python programming course				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT3	Python Frameworks				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT4	Fundamentals of Java programming				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT5	Advanced Java programming course				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT6	Java-based web applications				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT7	Data warehouses				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT8	BigData technologies				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT9	Business Intelligence technologies				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT10	Advanced web development course				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT11	JavaScript frameworks				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e
OPT12	NodeJS-based web applications				5.0	150.0	64.0	32.0	32.0		86.0																	321	KN-223i.e

* Disciplines from the list are taught by one in 4-6 semesters

CONTENT of CURRICULUM

for the training of the first (bachelor) level:
by 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	180.0	5400.0			75%
1.1	General training	48.0	1440.0			26,67%
GT 1	History and culture of Ukraine	3.0	90.0	1		310
GT 2	Ukrainian as a foreign language	8.0	240.0	6	3-5	273
GT 3	The language of vocational training	9.0	270.0	2	1	275
GT 4	Foreign language for professional communication	6.0	180.0	8	6-7	275
GT 5	Fundamentals of humanitarian and philosophical knowledge in professional activity	3.0	90.0	2		307
GT 6	Higher Mathematics	11.0	330.0	1-2		324
GT 7	Physics	4.0	120.0	1		168
GT 8	Physical education	4.0	120.0		1 - 2	302
1.2	Professional training	132.0	3960.0			73,33%
PT 1	Fundamentals of programming	11.0	330.0	1-2		321
PT 2	Fundamentals of software engineering	4.0	120.0		1	321
PT 3	Computer architecture and operating systems	4.0	120.0		2	321
PT 4	Theory of algorithms	4.0	120.0		2	321
PT 5	Probability theory and mathematical statistics	5.0	150.0	3		321
PT 6	Data models and structures	4.0	120.0	3		321
PT 7	Object-oriented programming	4.0	120.0	3		321
PT 8	Computer networks	3.0	90.0		3	321
PT 9	Mathematical modeling and systems analysis	5.0	150.0		3	321
PT 10	Computer mathematics	13.0	390.0	5-6	4	321
PT 11	Fundamentals of web development	4.0	120.0	4		321
PT 12	Database design and development	4.0	120.0	4		321
PT 13	Software requirements engineering	4.0	120.0		4	321
PT 14	CI/CD	3.0	90.0		5	321
PT 15	Architecture and Design of Software	8.0	240.0	5-6		321
PT 16	Software quality, testing and support	4.0	120.0	5		321
PT 17	Fundamentals of cybersecurity	3.0	90.0	6		321
PT 18	Decision making theory	4.0	120.0	7		321
PT 19	Scientific and practical training seminar "Software engineering"	7.0	210.0		7-8	321
PT 20	Software modeling and analysis	4.0	120.0	8		321
PT 21	Practical seminar on mathematical methods in software engineering	3.0	90.0		8	321
PT 22	Artificial intelligence systems	3.0	90.0		8	321
PT 23	Fundamentals of software project management	3.0	90.0	8		321
PT 24	Introductory practice at the "Innovation Campus"	3.0	90.0		2	321
PT 25	Project (practice)	6.0	180.0		6	321
PT 26	Pre-graduation Practice	6.0	180.0		8	
PT27	Attestation*	6.0	180.0			
2	Optional educational components	60.0	1800.0			25%
2.1	Profile training	33.0	990.0			55%
2.1.1	Profiled discipline package 01 "Research and Development"	33.0	990.0			
OP1.1	Foreign language for scientific research	9.0	270.0	5	3-4	275
OP1.2	Data collection and preparation	4.0	120.0		3	321
OP1.3	Probabilistic and statistical models	4.0	120.0		4	321
OP1.4	Planning of the experiment	4.0	120.0		5	321
OP1.5	Complex systems modeling methods	4.0	120.0		6	321
OP1.6	Fuzzy logic and fuzzy systems	4.0	120.0		7	321
OP1.7	Fundamentals of Machine Learning	4.0	120.0		7	321
2.1.2	Profiled discipline package 02 "Software Development and Startup"	33.0	990.0			
OP2.1	Foreign language for business communications	9.0	270.0	5	3-4	275
OP2.2	Fundamentals of entrepreneurship	4.0	120.0		3	321
OP2.3	Business modeling	4.0	120.0		4	321
OP2.4	Fundamentals of prototyping	4.0	120.0		5	321
OP2.5	Startup business planning	4.0	120.0		6	321
OP2.6	Internet marketing	4.0	120.0		7	321
OP2.7	Startup business analytics	4.0	120.0		7	321
2.1.3	Profiled discipline package 03 "Innovation Campus"	33.0	990.0			
OP3.1	Foreign language for the development of corporate information systems	9.0	270.0	5	3-4	275
OP3.2	Development of corporate information systems (part 1)	4.0	120.0		3	329
OP3.3	Development of corporate information systems (part 2)	4.0	120.0		4	329
OP3.4	Databases for corporate information systems	4.0	120.0		5	329
OP3.5	Architecture of corporate information systems	4.0	120.0		6	329
OP3.6	Project workshop	4.0	120.0		7	329
OP3.7	IT project teams formation and development	4.0	120.0		7	329
2.2	Optional student disciplines of the profile preparation according to the list	15.0	450.0		4-6	25%
2.3	Optional student disciplines from the general university catalog of disciplines	12.0	360.0			20%
OD1	Discipline 1	4.0	120.0		7	
OD2	Discipline 2	4.0	120.0		7	
OD3	Discipline 3	4.0	120.0		7	
	Total for education period	240.0	7200.0			