



MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
NATIONAL TECHNICAL UNIVERSITY "KHARKIV POLYTECHNIC INSTITUTE"

APPROVE BY

educational and professional program

Cybersecurity

Rector of NTU "KhPI" \_\_\_\_\_ for the training \_\_\_\_\_ second (master's) level \_\_\_\_\_ in the field of knowledge F Information technologies \_\_\_\_\_  
(level of higher education) (code and name of the field of knowledge)

\_\_\_\_\_ Yevgen SOKOL \_\_\_\_\_ by specialty - F5 Cybersecurity and information protection \_\_\_\_\_

Qualification Master of Cybersecurity and information protection

Period of study 1 year 4 months

on the basis of bachelor's degree

"\_\_" \_\_\_\_\_ 2026 y.

Form of study full-time

I. Schedule of the educational process

Course	September				October				November				December				January				February				March				April				May				June				July				August						
	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
1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	S	E	E	E	V	V	V	T	T	T	T	T	T	T	T	T	T	T	T	T	S	E	E	E	V	V	V	V	V	V	V	V	V	V	
2	T	T	T	T	P	P	P	P	P	P	P	S	C	C	C	C	C																																		

Notation:

<b>T</b>	Theoretical training	<b>P</b>	Practice	<b>C</b>	Attestation	<b>V</b>	Vacations
<b>S</b>	Score week						
<b>E</b>	Examination session						

69				sum		letter		uk	
52				1	2	3			
X Independent work	16	16	4	36	T				
C session	4	4	1	9	E	S			
П practice			7	7	P				
diploma project									
K vacation	3	9		12	V				
A certification			5	5	C				
Всього	23	29	17	69					

II. Consolidated budget time (in weeks)

Course	Theoretical study	Exam Session	Practice	Attestation	Free time	Total
1	32	8			12	52
2	4	1	7	5		17
Total	36	9	7	5	12	69

III. Practice

Practice	Duration (in weeks)	Semester
Pre-graduation internship*	7	3

IV. Attestation

Certification form	Semester
Preparation and defense of qualification work	3

## CURRICULUM CONTENT

Master's degree program:

by specialty

F5

Cybersecurity and information  
protection

Code according to EPP	Name of the educational component	Total number				Department code
		ECTS credits	Hours	Semesters		
				exam.	offset	
1	2	3	4	5	6	7
1	Mandatory educational components	58,0	1740,0			48%
1.1	General training	13,0	390,0			11%
GT 1	Academic English	3,0	90,0	1		328
GT 2	Innovative entrepreneurship and startup project management	3,0	90,0	2		328
GT 3	AI-Based Security	3,0	90,0	2		328
GT 4	Безпека Інтернет речей та сервісів	4,0	120,0		1	328
1.2	Special (professional) training	23,0	690,0			19%
ST 1	Fundamentals of scientific research	5,0	150,0	1		328
ST 2	Critical Infrastructure Security	5,0	150,0		1	328
ST 3	Network and cloud security	5,0	150,0	1		328
ST 4	Protection of Distributed Services and Operating Platforms	4,0	120,0		1	328
ST 5	Digital forensics	4,0	120,0		1	328
1.3	Practical training	11,0	330,0			9%
PT 1	Pre-graduation internship*	11,0	330,0		3	328
1.4	Preparation and defense of qualification work	11,0	330,0			9%
2	Optional educational components	32,0	960,0			27%
2.1	Educational components of free choice of professional training of the general institutional catalog	24,0	720,0			20,00%
2.2	Educational components of free choice of general training	8,0	240,0			6,67%
ECGT 1	EC FC GT 1	4,0	120,0		3	
ECGT 2	EC FC GT 2	4,0	120,0		3	
	Total number for the training period	90,0	2700,0			

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<b>CURRICULUM №</b>	<b>KH-M1126I.e.</b>
<b>Form of study and more</b>	<b>i.e.</b>
<b>Institute code</b>	<b>320</b>
<b>Short name of the institute</b>	<b>KH</b>
<b>Number of the educational program</b>	<b>11</b>
<b>Name of the educational program</b>	<b>Cybersecurity</b>
<b>Code of the field of knowledge</b>	<b>F</b>
<b>Industry name</b>	<b>Information technologies</b>
<b>Specialty code</b>	<b>F5</b>
<b>Name of the specialty</b>	<b>Cybersecurity and information protection</b>
<b>Level of higher education:</b>	<b>second (master's) level</b>
<b>Qualifications:</b>	<b>Master of Cybersecurity and information protection</b>
<b>Year (last 2 digits)</b>	<b>26</b>
<b>Responsible for information, phone number</b>	<b>Olha KOROL, 095-251-75-48</b>

<b>Form: plans of the Master</b>	educational and professional

1,4

## V. EDUCATION PROCESS PLAN

KH-M11251.e.

Code according to EPP	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					
							Total	including			Semesters		Semesters			Semesters		Semesters					
								Lectures	Laboratory works	Practical studies	1		2	3	4	1	2	3	4				
											Number of weeks in the semester												
											20		20		20		20						
											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			
1	Mandatory educational components				58,0	1740,0	432,0	224,0	128,0	80,0	1308,0	23,0	30,0	4,0	6,0	0,0	0,0	0,0	0,0	0,0			
1.1	General training				13,0	390,0	144,0	64,0	32,0	48,0	246,0	5,0	7,0	4,0	6,0	0,0	0,0	0,0	0,0	0,0			
GT 1	Academic English	1			3,0	90,0	32,0			32,0	58,0	2,0	3,0								328		
GT 2	Innovative entrepreneurship and startup project management	2			3,0	90,0	32,0	16,0		16,0	58,0			2,0	3,0						328		
GT 3	AI-Based Security	2			3,0	90,0	32,0	16,0	16,0		58,0			2,0	3,0						328		
GT 4	Security of the Internet of Things and Services		1		4,0	120,0	48,0	32,0	16,0		72,0	3,0	4,0								328		
1.2	Special (professional) training				23,0	690,0	288,0	160,0	96,0	32,0	402,0	18,0	23,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0			
ST 1	Fundamentals of scientific research	1			5,0	150,0	64,0	32,0		32,0	86,0	4,0	5								328		
ST 2	Critical Infrastructure Security		1		5,0	150,0	64,0	32,0	32,0		86,0	4,0	5								328		
ST 3	Network and cloud security	1			5,0	150,0	64,0	32,0	32,0		86,0	4,0	5								328		
ST 4	Protection of Distributed Services and Operating Platforms		1		4,0	120,0	48,0	32,0	16,0		72,0	3,0	4								328		
ST 5	Digital forensics		1		4,0	120,0	48,0	32,0	16,0		72,0	3,0	4								328		
1.3	Practical training				11,0	330,0	0,0	0,0	0,0	0,0	330,0	0,0	0,0	0,0	0,0	0,0	11,0	0,0	0,0	0,0			
PT 1	Pre-graduation internship*		3		11,0	330,0	0,0				330,0						11,0				328		
1.4	Preparation and defense of qualification work				11,0	330,0	0,0				330,0						11,0						
2	Optional educational components				32,0	960,0	384,0	160,0	192,0	32,0	576,0	0,0	0,0	18,0	24,0	24,0	8,0	0,0	0,0	0,0			
2.1	Educational components of free choice of professional training of the general institutional catalog				24,0	720,0	288,0	96,0	192,0	0,0	432,0	0,0	0,0	18,0	24,0	0,0	0,0	0,0	0,0	0,0			
ECPT 1	EC FC PT 1		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
ECPT 2	EC FC PT 2		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
ECPT 3	EC FC PT 3		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
ECPT 4	EC FC PT 4		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
ECPT 5	EC FC PT 5		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
ECPT 6	EC FC PT 6		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						328		
2.2	Educational components of free choice of general training				8,0	240,0	96,0	64,0	0,0	32,0	144,0	0,0	0,0	0,0	0,0	24,0	8,0	0,0	0,0	0,0			
ECGT 1	EC FC GT 1		3	RE	4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0						
ECGT 2	EC FC GT 2		3	RE	4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0						
Total number for the training period					90,0	2700,0	816,0				1884,0	23,0	30,0	22,0	30,0	24,0	30,0	0,0	0,0	0,0			
Hours per week												23,0		22,0		24,0		0,0		0,0			
Number of exams												3		2		1							
Number of tests												4		6		3							
Number of course projects (works)																							
Numbers of disciplines per semester												7,0		8,0		4,0		0,0		0,0			

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

Approved by the Academic Council of NTU "KhPI"

PROTOCOL № \_\_\_ from \_\_\_ 2026

Vice-rector of Scientific-and-Pedagogical Work \_\_\_\_\_ Gennadiy KHRYPUNOV  
signatureHead of the educational program \_\_\_\_\_ OIha KOROL  
signatureDirector of the Institute \_\_\_\_\_ Mykhailo GODLEVSKYI  
name of the institute signatureHead of the Department \_\_\_\_\_ Serhii YEVSEIEV  
institute's department name signature

# 1 - List of Educational components of free choice of professional training

No. n°	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		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29	
4.1	Educational components of free choice of professional training																				
ECPT 1	Vulnerability Assessment and Information		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 2	Models and technologies for ensuring the		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 3	Server system security		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 4	Swarm Algorithms in Cybersecurity		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 5	Web application interface development		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 6	Spring Security for client-server application		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 7	SQL for backend developers		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 8	Machine Learning		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 9	Neural networks		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 10	Artificial intelligence and business analytics		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 11	Smart technology security		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 12	Comprehensive training course "Web application security"		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 13	Comprehensive training course "Blockchain: mathematical problems and applications"		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 14	Comprehensive training course "Cryptography and cryptanalysis"		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 15	Fundamentals of Distributed Artificial Intelligence for Cybersecurity		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 16	Security of Artificial Intelligence Systems		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 17	SASE and Network Perimeter Protection		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328
ECPT 18	Cyber incident management		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4						328

2 - List of Education components of free choice of general training

№	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		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29	
4.2	Educational components of free choice of general training																				
	Ukrainian studies educational components																				
ECGT 1	Ethnolinguistic Processes in Ukraine		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				310
ECGT 1	History of Culture of Sloboda Ukraine		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				310
ECGT 1	History of Ukrainian Governmentality		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				310
	Discipline of psychological direction																				
ECGT 2	Psychology of Leadership in Business		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				301
ECGT 2	Psychology of Leadership in Education		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				301
ECGT 2	Fundamentals of Professional Psychology		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				301
	Discipline of legal direction																				
ECGT 3	Legal Regulation of Innovation Activities		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				306
ECGT 3	Information Law		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				306
ECGT 3	Copyright and Related Rights		3		4,0	120,0	48,0	32,0		16,0	72,0					12,0	4,0				306