



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

CURRICULUM

educational and professional program

Cybersecurity

Acting Rector of NTU "KhPI" for the training

second (master's) level
(level of higher education)

in the field of
knowledge

F Information technologies
(code and name of the field of knowledge)



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

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	52
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	T	T	T	T	S	E	E	E	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:

T Theoretical training
S Score week
E Examination session

P Practice

C Attestation

V Vacations

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
Research and development	7	3

IV. Attestation

Certification form	Semester
Defense of qualification thesis	3
Attestation Exam	3
Proficiency examination	

Handwritten signature

CURRICULUM №	KH-M1126i
Form of study and more	i
Institute code	320
Short name of the institute	KH
Number of the educational program	11
Name of the educational program	Cybersecurity
Code of the field of knowledge	F
Industry name	Information technologies
Specialty code	F5
Name of the specialty	Cybersecurity and information protection
Level of higher education:	second (master's) level
Qualifications:	Master of Cybersecurity and information protection
Year (last 2 digits)	26
Responsible for information, phone number	Olha KOROL, 095-251-75-48

Form: plans of the Master educational and professional

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	15,0	450,0			13%
GT 1	Academic English	3,0	90,0		1	328
GT 2	Innovative entrepreneurship and startup project management	3,0	90,0		1	328
GT 3	Intellectual property	3,0	90,0		1	328
GT 4	Artificial intelligence-based security	3,0	90,0	2		328
GT 5	Security of the Internet of Things and Services	3,0	90,0	2		328
1.2	Special (professional) training	21,0	630,0			18%
PT 1	Fundamentals of scientific research	5,0	150,0	1		328
PT 2	Critical Infrastructure Security	4,0	120,0		1	328
PT 3	Network and cloud security	4,0	120,0	1		328
PT 4	Protection of Distributed Services and Operating Platforms	4,0	120,0		1	328
PT 5	Digital forensics	4,0	120,0		1	328
1.3	Practical training	11,0	330,0			9%
PT 1	Research and development practice	11,0	330,0		3	328
1.4	Certification	11,0	330,0	3		9%
2	Elective 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%
ECPT 1	EC FC PT 1	4,0	120,0		2	777
ECPT 2	EC FC PT 2	4,0	120,0		2	777
ECPT 3	EC FC PT 3	4,0	120,0		2	777
ECPT 4	EC FC PT 4	4,0	120,0		2	777
ECPT 5	EC FC PT 5	4,0	120,0		2	777
ECPT 6	EC FC PT 6	4,0	120,0		2	777
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	777
ECGT 2	EC FC GT 2	4,0	120,0		3	777
	Total number for the training period	90,0	2700,0			

V. EDUCATION PROCESS PLAN

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					In dependent work	1 course				2 course							
							Total	including			Semesters		Semesters		1		2		3		4			
								Lectures	Laboratory works	Practical studies	Number of weeks in the semester													
											20		20	20	20	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits		Classroom m hours	ECTS credits	Classroom m hours	ECTS credits
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29				
1	Mandatory educational components				58,0	1740,0	416,0	160,0	160,0	96,0	1324,0	22,0	30,0	4,0	6,0									
1.1	General training				15,0	450,0	160,0	64,0	32,0	64,0	290,0	6,0	9,0	4,0	6,0									
GT 1	Academic English		1	PE	3,0	90,0	32,0			32,0	58,0	2,0	3,0								328			
GT 2	Innovative entrepreneurship and startup project management		1	PE	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0								328			
GT 3	Intellectual property		1	PE	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0								328			
GT 4	Artificial intelligence-based security	2			3,0	90,0	32,0	16,0	16,0		58,0			2,0	3,0						328			
GT 5	Security of the Internet of Things and Services	2			3,0	90,0	32,0	16,0	16,0		58,0			2,0	3,0						328			
1.2	Special (professional) training				21,0	630,0	256,0	96,0	128,0	32,0	374,0	16,0	21,0											
PT 1	Fundamentals of scientific research	1			5,0	150,0	64,0	32,0		32,0	86,0	4,0	5								328			
PT 2	Critical Infrastructure Security		1		4,0	120,0	48,0	16,0	32,0		72,0	3,0	4								328			
PT 3	Network and cloud security	1			4,0	120,0	48,0	16,0	32,0		72,0	3,0	4								328			
PT 4	Protection of Distributed Services and Operating Platforms		1		4,0	120,0	48,0	16,0	32,0		72,0	3,0	4								328			
PT 5	Digital forensics		1		4,0	120,0	48,0	16,0	32,0		72,0	3,0	4								328			
1.3	Practical training				11,0	330,0					330,0								11,0					
PT 1	Research and development practice		3		11,0	330,0					330,0								11,0		328			
1.4	Certification	3			11,0	330,0					330,0								11,0		328,0			
2	Elective educational components				32,0	960,0	384,0	128,0	256,0		576,0			18,0	24,0	24,0	8,0							
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		432,0			18,0	24,0									
ECPT 1	EC FC PT 1		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						777			
ECPT 2	EC FC PT 2		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						777			
ECPT 3	EC FC PT 3		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						777			
ECPT 4	EC FC PT 4		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0						777			

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29
ECPT 5	EC FC PT 5		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0					777
ECPT 6	EC FC PT 6		2		4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0					777
2.2	Educational components of free choice of general training				8,0	240,0	96,0	32,0	64,0		144,0					24,0	8,0			
ECGT 1	EC FC GT 1		3		4,0	120,0	48,0	16,0	32,0		72,0					12,0	4,0			777
ECGT 2	EC FC GT 2		3		4,0	120,0	48,0	16,0	32,0		72,0					12,0	4,0			777
Total number for the training period					90,0	2700,0	800,0				1900,0	22,0	30,0	22,0	30,0	24,0	30,0			
Hours per week												22,0	22,0	24,0						
Number of exams												2	2	1						
Number of tests												6	6	3						
Number of course projects (works)																				
Numbers of disciplines per semester												8,0	8,0	4,0						

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 № 5 from 28.04.2026

Vice-rector of Scientific-and-Pedagogical Work

Gennadiy KHRYPUNOV

signature

Head of the educational program "Cybersecurity"

OIha KOROL

signature

Deputy
Director of the Institute

name of the institute

Mykhailo GODLEVSKYI

signature

Dmytro Kudic

Head of the Department

institute's department name

Serhii YEVSEIEV

signature

Handwritten signature

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		1		2		3		
							Total	including			Semesters		Semesters		Number of weeks in the semester						
		Lectures	Laboratory works	Practical studies		20		20	16	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits				
		13	14	15		16	17	18	19	20											
		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 System Protection		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 security of intelligent systems		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 developers		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

№ пп	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	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	Освітні компоненти вільного вибору загальної підготовки																				
	Ukrainian studies educational components																				
OK3П 1	Ethnolinguistic Processes in Ukraine		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			310	
OK3П 1	History of Culture of Sloboda Ukraine		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			310	
OK3П 1	History of Ukrainian Governmentality		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			310	
	Discipline of psychological direction																				
OK3П 2	Psychology of Leadership in Business		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			301	
OK3П 2	Psychology of Leadership in Education		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			301	
OK3П 2	Fundamentals of Professional Psychology		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			301	
	Discipline of legal direction																				
OK3П 3	Legal Regulation of Innovation Activities		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			306	
OK3П 3	Information Law		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			306	
OK3П 3	Copyright and Related Rights		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0			306	