



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

CURRICULUM

APPROVE BY

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

"30" КВІТНЯ 2026 р.



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	S	E	E	E	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:

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

1,4

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	Web Application Vulnerability	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			

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

KH-M112

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				Independent work	1 course				2 course					
							Total	including				Semesters		Semesters							
								Lectures	Laboratory works	Practical studies		1	2	3	4						
												Number of weeks in the semester									
												20		20		20					
												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	
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	Web Application Vulnerability		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	

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

KH-M1126i.e.

	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

Vice-rector of Scientific-and-Pedagogical Work

Gennadiy KHRYPUNOV

signature

Head of the educational program "Cybersecurity"

Olha KOROL

signature

Deputy Director of the Institute

name of the institute

Mykhailo GODLEVSKYI

signature

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					
							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 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		
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																				
OKЗП 1	Ethnolinguistic Processes in Ukraine		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				310
OKЗП 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
OKЗП 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																				
OKЗП 2	Psychology of Leadership in Business		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				301
OKЗП 2	Psychology of Leadership in Education		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				301
OKЗП 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																				
OKЗП 3	Legal Regulation of Innovation Activities		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				306
OKЗП 3	Information Law		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				306
OKЗП 3	Copyright and Related Rights		3		4,0	120,0	48,0	16,0		32,0	72,0					12,0	4,0				306