



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

# CURRICULUM

educational and professional program

## APPROVED BY

Acting Rector of NTU "KhPI" **Yevgen SOKOL** for the training first (bachelor's) level  
(level of higher education)

*[Signature]*



Yevgen SOKOL

by specialty

'30" April 2026

Form of study full-time

## Cybersecurity

in the field of  
knowledge

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

- F5 Cybersecurity and information protection

Qualification

Bachelor of Cybersecurity  
and information  
protection

Period of study

3 years 10 months

on the basis of complete secondary education

## I. Schedule of education 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			
I	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	K	K	K	K	K	K	K		
II	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	K	K	K	K	K	K	K
III	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
IV	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	3	C	C	C	K	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

Notation:



Theoretical training  
3 Score week  
C Examination session



Theoretical and practical training  
П Practice



A Protection of the control work



K Vacations

## II. Consolidated budget time (in weeks)

Course	Theoretical study	Exam Session	Practice	Attestation	Vacation	Total
I	32	8			12	52
II	32	8			12	52
III	28	8	4		12	52
IV	28	6	4	2	3	43
<b>Total</b>	<b>120</b>	<b>30</b>	<b>8</b>	<b>2</b>	<b>39</b>	<b>199</b>

## III. Practice

Type of practice	Duration (in weeks)	Semester
Practice		
Industrial	4	6
Technological	4	8

## IV. Attestation

Certification form	Semester
Defense of qualification work	
Certification exam	
Single state qualification exam	8

<b>CURRICULUM №</b>	<b>KH-1126i</b>
<b>Form of study and more</b>	<b>i</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>first (bachelor's) level</b>
<b>Qualifications:</b>	<b>Bachelor of Cybersecurity and information protection</b>
<b>Year (last 2 digits)</b>	<b>26</b>
<b>Responsible for information, phone number</b>	<b>Andrii TKACHOV, 097-536-44-56</b>

## CURRICULUM CONTENT

training of the first (bachelor's) level:  
by specialty

F5

Cybersecurity and information protection

№ 3/n	Name of the educational component	Total number				Department code	
		ECTS credits	Hours	Semesters			
				exam.	offset		
1	2	3	4	5	6	7	
<b>1</b>	<b>Obligatory educational components</b>	<b>161,0</b>	<b>4830,0</b>			<b>67,08%</b>	
1.1	General training	58,0	1740,0			24,17%	KH-1126i
3П 1	The Foundations of National Resistance	5,0	150,0		3	777	KH-1126i
3П 2	The History of Ukrainian Statehood	4,0	120,0	1		310	KH-1126i
3П 3	Foreign Language	4,0	120,0	8	7	275	KH-1126i
3П 4	Ukrainian as a foreign language	12,0	360,0	8	3 - 7	273	KH-1126i
3П 5	Physics	4,0	120,0	1		168	KH-1126i
3П 6	Fundamentals of humanitarian and philosophical knowledge in professional activity	4,0	120,0	3		307	KH-1126i
3П 7	Higher mathematics	6,0	180,0		1	324	KH-1126i
3П 8	Fundamentals of Higher Algebra	5,0	150,0	2		324	KH-1126i
3П 9	Language of professional training	10,0	300,0	2	1	275	KH-1126i
3П	Physical education	4,0	120,0		1 - 2	302	KH-1126i
1.2	Professional training	103,0	3090,0			42,92%	KH-1126i
СП 1	Introduction to the specialty. Introductory practice	3,0	90,0		1	328	
СП 2	Basics of programming	4,0	120,0	1		328	
СП 3	Information and coding theory	3,0	90,0	1		328	
СП 4	Legal Regulation of Information Security	4,0	120,0		2	328	
СП 5	Algorithms and data structures	5,0	150,0		2	328	
СП 6	Physical bases of technical intelligence means	4,0	120,0	2		328	
СП 7	Information security of the state	4,0	120,0		2	328	
СП 8	Social Engineering Methods in Cybersecurity	3,0	90,0	6		328	
СП 9	Mathematical foundations of cryptology	3,0	90,0	3		328	
СП 10	Programming technologies	4,0	120,0	3		328	
СП 11	Computer networks	5,0	150,0	3		328	
СП 12	Security of Modern Operating Systems	5,0	150,0	4		328	
СП 13	Cybersecurity Software Development	4,0	120,0	4		328	
СП 14	Basics of cryptographic protection	5,0	150,0		4	328	
СП 15	Fundamentals of Microprocessor System Security	5,0	150,0	5		328	
СП 16	Administration of information protection systems	4,0	120,0	5		328	
СП 17	Basics of steganographic information protection	4,0	120,0	5		328	
СП 18	GeOSINT-reconnaissance	4,0	120,0		5	328	
СП 19	Web application development	4,0	120,0	6		328	
СП 20	Information security systems	5,0	150,0	7		328	
СП 21	Web security	6,0	180,0	7		328	
СП 22	Comprehensive training	4,0	120,0		8	328	
СП 23	Neural Networks	4,0	120,0		3	328	
СП 24	Open Source Intelligence (OSINT)	3,0	90,0		8	328	
<b>2</b>	<b>Professional training</b>	<b>12,0</b>	<b>360,0</b>			<b>5,00%</b>	KH-1126i
ПП 1	Industrial practice*	6,0	180,0		6	328	KH-1126i
ПП 2	Technological practice*	6,0	180,0		8	328	KH-1126i
<b>3</b>	<b>Attestation*</b>	<b>6,0</b>	<b>180,0</b>	<b>8</b>		<b>2,50%</b>	KH-1126i
<b>4</b>	<b>Optional educational components</b>	<b>61,0</b>	<b>1830,0</b>			<b>25,42%</b>	KH-1126i
4.1	Specialized training	21,0	630,0			8,75%	KH-1126i
4.1.1	Profiled package of educational components 01 "Artificial Intelligence in Security Systems"	21,0	630,0				KH-1126i
ВП1.1	Ethical hacking	3,0	90,0	4		328	KH-1126i
ВП1.2	Date of mining	3,0	90,0	4		328	KH-1126i
ВП1.3	Mathematical foundations of artificial intelligence	3,0	90,0	5		328	KH-1126i
ВП1.4	Python for artificial intelligence and machine learning	3,0	90,0	6		328	KH-1126i
ВП1.5	Genetic algorithms	3,0	90,0	7		328	KH-1126i
ВП1.6	Python for internet things	3,0	90,0	8		328	KH-1126i
ВП1.7	Systems engineering	3,0	90,0	8		328	KH-1126i
4.1.2	Profiled package of educational components 02 "Blockchain technology and security of banking systems"	21,0	630,0				KH-1126i
ВП2.1	Decentralised systems	3,0	90,0	4		328	KH-1126i
ВП2.2	Risk management	3,0	90,0	4		328	KH-1126i
ВП2.3	Blockchain: basics and application examples	3,0	90,0	5		328	KH-1126i
ВП2.4	Security of banking systems	3,0	90,0	6		328	KH-1126i
ВП2.5	Protecting critical infrastructure facilities	3,0	90,0	7		328	KH-1126i
ВП2.6	Organising document management with restricted access	3,0	90,0	8		328	KH-1126i
ВП2.7	DevOps Security	3,0	90,0	8		328	KH-1126i
4.1.3	Profiled package of educational components в 03 "Innovation Campus"	21,0	630,0				KH-1126i
ВП3.1	Basics of cybersecurity	3,0	90,0	4		328	KH-1126i
ВП3.2	Development of corporate information systems (part 1)	3,0	90,0	4		328	KH-1126i
ВП3.3	Development of corporate information systems (part 2)	3,0	90,0	5		328	KH-1126i
ВП3.4	Databases for corporate information systems	3,0	90,0	6		328	KH-1126i
ВП3.5	Architecture of corporate information systems	3,0	90,0	7		328	KH-1126i
ВП3.6	Security and audit of wireless and mobile networks	3,0	90,0	8		328	KH-1126i
ВП3.7	Protecting critical infrastructure facilities	3,0	90,0	8		328	KH-1126i
4.2	Educational components of free choice of professional training of the general institute catalog	28,0	840,0			45,90%	KH-1126i
ОКВП 1	ОК ВВ ПК 1	4,0	120,0		3	777	KH-1126i
ОКВП 2	ОК ВВ ПК 2	4,0	120,0		4	777	KH-1126i
ОКВП 3	ОК ВВ ПК 3	4,0	120,0		5	777	KH-1126i
ОКВП 4	ОК ВВ ПК 4	4,0	120,0		6	777	KH-1126i
ОКВП 5	ОК ВВ ПК 5	4,0	120,0		6	777	KH-1126i
ОКВП 6	ОК ВВ ПК 6	4,0	120,0		7	777	KH-1126i
ОКВП 7	ОК ВВ ПК 7	4,0	120,0		7	777	KH-1126i
4.3	Educational components of the free choice of the university-wide catalog	12,0	360,0			19,67%	KH-1126i
ОКВ3 1	ОК ВВ 3П 1	4,0	120,0		5	777	KH-1126i
ОКВ3 2	ОК ВВ 3П 2	4,0	120,0		6	777	KH-1126i
ОКВ3 3	ОК ВВ 3П 3	4,0	120,0		7	777	KH-1126i
	<b>Total for education period</b>	<b>240,0</b>	<b>7200,0</b>				KH-1126i



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
СП 18	GeOSINT-reconnaissance		5		4,0	120,0	48,0	16	32		72,0									3	4							328
СП 19	Web application development	6		CP	4,0	120,0	36,0	12	24		84,0											3	4					328
СП 20	Information security systems	7			5,0	150,0	64,0	32	32		86,0													4	5			328
СП 21	Web security	7		CP	6,0	180,0	80,0	32	48		100,0													5	6			328
СП 22	Internet of Things security		4		4,0	120,0	48,0	16	32		72,0							3	4									328
СП 23	Comprehensive training		8	A	4,0	120,0	48,0	24	24		72,0															4	4	328
СП 24	Neural Networks		3		3,0	90,0	32,0	16	16		58,0					2	3											328
СП 25	Open Source Intelligence (OSINT)		8		4,0	120,0	48,0	24,0	24,0		72,0															4,0	4,0	328
<b>2</b>	<b>Professional training</b>				<b>12,0</b>	<b>360,0</b>					<b>360,0</b>												<b>6,0</b>				<b>6,0</b>	
ПП 1	Industrial practice*		6		6,0	180,0					180,0												6,0					328
ПП 2	Technological practice*		8		6,0	180,0					180,0																6,0	328
<b>3</b>	<b>Attestation*</b>	<b>8</b>			<b>6,0</b>	<b>180,0</b>					<b>180,0</b>																<b>6,0</b>	
<b>4</b>	<b>Optional educational components</b>				<b>61,0</b>	<b>1830,0</b>	<b>668,0</b>	<b>248,0</b>	<b>420,0</b>		<b>1162,0</b>					<b>3,0</b>	<b>4,0</b>	<b>7,0</b>	<b>10,0</b>	<b>8,0</b>	<b>11,0</b>	<b>11,0</b>	<b>15,0</b>	<b>11,0</b>	<b>15,0</b>	<b>6,0</b>	<b>6,0</b>	
4.1	Specialized training				21,0	630,0	224,0	100,0	124,0		406,0							4,0	6,0	2,0	3,0	2,0	3,0	2,0	3,0	6,0	6,0	
4.1.1	Profiled package of educational components 01 "Artificial Intelligence in Security Systems"				21,0	630,0	224,0	100,0	124,0		406,0							4,0	6,0	2,0	3,0	2,0	3,0	2,0	3,0	6,0	6,0	
ВП1.1	Ethical hacking	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП1.2	Date of mining	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП1.3	Mathematical foundations of artificial intelligence	5			3,0	90,0	32,0	16	16		58,0									2	3							328
ВП1.4	Python for artificial intelligence and machine learning	6			3,0	90,0	24,0	12	12		66,0											2	3					328
ВП1.5	Genetic algorithms	7			3,0	90,0	32,0	16	16		58,0												2	3				328
ВП1.6	Python for internet things	8			3,0	90,0	36,0	12	24		54,0															3	3	328
ВП1.7	Systems engineering	8			3,0	90,0	36,0	12	24		54,0															3	3	328
4.1.2	Profiled package of educational components 02 "Blockchain technology and security of banking systems"				21,0	630,0	224,0	100,0	124,0		406,0							4,0	6,0	2,0	3,0	2,0	3,0	2,0	3,0	6,0	6,0	
ВП2.1	Decentralised systems	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП2.2	Risk management	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП2.3	Blockchain: basics and application examples	5			3,0	90,0	32,0	16	16		58,0									2	3							328
ВП2.4	Security of banking systems	6			3,0	90,0	24,0	12	12		66,0											2	3					328
ВП2.5	Protecting critical infrastructure facilities	7			3,0	90,0	32,0	16	16		58,0												2	3				328
ВП2.6	Organising document management with restricted access	8			3,0	90,0	36,0	12	24		54,0															3	3	328
ВП2.7	DevOps Security	8			3,0	90,0	36,0	12	24		54,0															3	3	328
4.1.3	Profiled package of educational components в 03 "Innovation Campus"				21,0	630,0	224,0	100,0	124,0		406,0							4,0	6,0	2,0	3,0	2,0	3,0	2,0	3,0	6,0	6,0	
ВП3.1	Basics of cybersecurity	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП3.2	Development of corporate information systems (part 1)	4			3,0	90,0	32,0	16	16		58,0							2	3									328
ВП3.3	Development of corporate information systems (part 2)	5			3,0	90,0	32,0	16	16		58,0									2	3							328
ВП3.4	Databases for corporate information systems	6			3,0	90,0	24,0	12	12		66,0											2	3					328
ВП3.5	Architecture of corporate information systems	7			3,0	90,0	32,0	16	16		58,0												2	3				328
ВП3.6	Security and audit of wireless and mobile networks	8			3,0	90,0	36,0	12	24		54,0															3	3	328
ВП3.7	Protecting critical infrastructure facilities	8			3,0	90,0	36,0	12	24		54,0															3	3	328
<b>4.2</b>	<b>Educational components of free choice of professional training of the general institute catalog</b>				<b>28,0</b>	<b>840,0</b>	<b>312,0</b>	<b>104,0</b>	<b>208,0</b>		<b>528,0</b>					<b>3,0</b>	<b>4,0</b>	<b>3,0</b>	<b>4,0</b>	<b>3,0</b>	<b>4,0</b>	<b>6,0</b>	<b>8,0</b>	<b>6,0</b>	<b>8,0</b>			

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	
OKBП 1	OK BB ПК 1		3		4,0	120,0	48,0	16,0	32,0		72,0					3,0	4,0											777	
OKBП 2	OK BB ПК 2		4		4,0	120,0	48,0	16,0	32,0		72,0						3,0	4,0			3,0	4,0						777	
OKBП 3	OK BB ПК 3		5		4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					777	
OKBП 4	OK BB ПК 4		6		4,0	120,0	36,0	12,0	24,0		84,0											3,0	4,0					777	
OKBП 5	OK BB ПК 5		6		4,0	120,0	36,0	12,0	24,0		84,0													3,0	4,0			777	
OKBП 6	OK BB ПК 6		7		4,0	120,0	48,0	16,0	32,0		72,0													3,0	4,0			777	
OKBП 7	OK BB ПК 7		7		4,0	120,0	48,0	16,0	32,0		72,0													3,0	4,0			777	
4.3	Educational components of the free choice of the university-wide catalog				12,0	360,0	132,0	44,0	88,0		228,0										3,0	4,0	3,0	4,0	3,0	4,0			777
OKB3 1	OK BB ЗП 1		5		4,0	120,0	48,0	16,0	32,0		72,0											3,0	4,0					777	
OKB3 2	OK BB ЗП 2		6		4,0	120,0	36,0	12,0	24,0		84,0														3,0	4,0		777	
OKB3 3	OK BB ЗП 3		7		4,0	120,0	48,0	16,0	32,0		72,0														3,0	4,0		777	
<b>Total for education period</b>					<b>240,0</b>	<b>7200,0</b>	<b>2704,0</b>	<b>896,0</b>	<b>1080,0</b>	<b>728,0</b>	<b>4496,0</b>	<b>24,0</b>	<b>30,0</b>	<b>25,0</b>	<b>30,0</b>	<b>23,0</b>	<b>30,0</b>	<b>23,0</b>	<b>30,0</b>	<b>23,0</b>	<b>30,0</b>	<b>23,0</b>	<b>30,0</b>	<b>18,0</b>	<b>30,0</b>	<b>24,0</b>	<b>30,0</b>	<b>18,0</b>	<b>30,0</b>
Hours per week												4	3	4	4	4	4	4	4	4	4	3	3	5					
Number of exams												4	4	4	4	4	4	4	4	4	4	5	5	3					
Number of tests																							1	1					
Number of course projects (works)																													
Numbers of disciplines per semester												8	7	8	8	8	8	8	8	8	8	8	8	8	8				

Individual tasks	
P	Calculated task
ПГ	Calculated and graphic task
PE	Report
КП	Course project
КР	Course work

Approved by the Academic Council of NTU "KhPI"  
Protocol № 4 from 28.04.2026

Vice-rector of Scientific-and-Pedagogical Work

Gennadiy KHRYPUNOV  
signature

Guarantor of the academic program  
"Cybersecurity"

Andrii TKACHOV  
signature

Director of the Institute of Computer Science  
and Information Technology  
name of the institute

Mykhailo GODLEVSKIY  
signature  
Oles TOKHISA

Head of the Cybersecurity Department  
institute's department name

Serhii YEVSEIEV  
signature

\* Practices and certification are conducted by graduating departments

