



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

CURRICULUM

academic-professional program

Cybersecurity

knowledge
field

12 Information technologies

(code and name of knowledge field)

APPROVED

Rector of NTU "KhPI"

training

first (bachelor's) level

(рівень вищої освіти)

specialty

- 125 Cybersecurity and information protection

Qualification

Bachelor of
Cybersecurity

Term of study

3 years 10 months

complete secondary
on the basis of education

Form of study

full-time

I. Schedule of the educational process

Year	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																	C	E	E	E	V	V	V															C	E	E	E	V	V	V	V	V	V	V	V	V	V		
II																	C	E	E	E	V	V	V															C	E	E	E	V	V	V	V	V	V	V	V	V	V		
III																	C	E	E	E	V	V	V															P	P	P	P	C	E	E	E	V	V	V	V	V	V	V	V
IV																	C	E	E	E	V	V	V															E	E	P	P	P	P	Q	Q								

Marking:

☐ Theoretical study
C Crediting week
E Examination period

☐ Theoretical and practical training
P Practice
D Preparing a qualification paper and/or exam

A Defence of qualification work
Q Unified state qualification exam
I Certification exam

V Vacation

II. Consolidated time budgets (in weeks)

Year	Theoretical study	Examination period	Practice	Attestation	Performing qualification work	Vacation	Total
I	32	4				12	48
II	32	4				12	48
III	28	4				12	44
IV	28	4		2		3	37
Total	120	16		2		39	177

III. Practice

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

IV. Attestation

Activities	Number of ECTS credits	Semester
Preparing a qualification paper and/or exam		
Defence of qualification work		
Certification exam		
Unified state qualification exam	3,0	8

CURRICULUM №	KH-1124i
Форма навчання та інше	i
Шифр інституту	320
Скорочена назва інституту	KH
Номер освітньої програми	11
Назва освітньої програми	Cybersecurity
Шифр галузі знань	12
Назва галузі	Information technologies
Шифр спеціальності	125
Назва спеціальності	Cybersecurity and information protection
Рівень вищої освіти:	first (bachelor's) level
Кваліфікація:	Bachelor of Cybersecurity
Рік (останні 2 цифри)	24
Відповідальний за інформацію, телефон	Serhii YEVSEIEV, 095-360-66-13

Form Б1-22 м4

CURRICULUM CONTENT

first (bachelor's) level training:
за спеціальністю

125

Cybersecurity and
information protection

№ by order	Name of discipline	Total number				Departme nt code
		ECTS credits	Hours	Semesters		
				Exam	Cr.Test	
1	2	3	4	5	6	7
1	Compulsory educational components	163.0	4890.0			67.92%
1.1	General training	57.0	1710.0			35%
ЗП 1	History and culture of Ukraine	4.0	120.0	1		310
ЗП 2	Foreign Language	4.0	120.0	8	7	273
ЗП 3	Ukrainian as a foreign language	12.0	360.0	6	3-5	275
ЗП 4	Physics	6.0	180.0	1		168
ЗП 5	Fundamentals of humanitarian and philosophical knowledge in professional activity	4.0	120.0	3		307
ЗП 6	Higher mathematics	12.0	360.0	2	1	324
ЗП	Physical training	6.0	180.0		2-4	302
1.2	Special (professional) training	106.0	3180.0			65%
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 cybersecurity	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	5.0	150.0	2		328
СП 7	Information security of the state	3.0	90.0		2	328
СП 8	Fundamentals of social engineering	4.0	120.0		3	328
СП 9	Mathematical foundations of cryptology	4.0	120.0	3		328
СП 10	Programming technologies	5.0	150.0	3		328
СП 11	Computer networks	5.0	150.0	3		328
СП 12	Operating system architecture and security	5.0	150.0		4	328
СП 13	Programming tools	6.0	180.0	4		328
СП 14	Basics of cryptographic protection	5.0	150.0		4	328
СП 15	Fundamentals of building and protecting microprocessor systems	4.0	120.0	5		328
СП 16	Fundamentals of mathematical modelling of security systems	4.0	120.0	5		328
СП 17	Basics of steganographic information protection	5.0	150.0		5	328
СП 18	Security in information and communication systems	4.0	120.0		5	328
СП 19	Web application development	6.0	180.0	6		328
СП 20	Integrated information security systems	4.0	120.0	7		328
СП 21	Security of Internet things	3.0	90.0		7	328
СП 22	Web security	4.0	120.0		7	328
СП 23	Comprehensive training	4.0	120.0		8	328
СП 24	Antivirus protection of information	4.0	120.0		8	328
СП 25	Machine learning basics for cybersecurity	3.0	90.0	8		328
2	Practical training	12.0	360.0			5.00%
ПП 1	Industrial practice*	6.0	180.0			
ПП 2	Technological practice*	6.0	180.0			
3	Атестація	3.0	90.0			1.25%
4	Selective educational components	62.0	1860.0			25.83%
4.1	Profile training	22.0	660.0			35%
4.1.1	Profiled package of educational components 01 "Artificial Intelligence in Security Systems"	22.0	660.0			
ВП1.1	Ethical hacking	3.0	90.0	4		328
ВП1.2	Date of mining	3.0	90.0	4		328
ВП1.3	Mathematical foundations of artificial intelligence	3.0	90.0	5		328
ВП1.4	Python for artificial intelligence and machine learning	4.0	120.0	6		328
ВП1.5	Genetic algorithms	3.0	90.0	7		328
ВП1.6	Python for internet things	3.0	90.0	8		328
ВП1.7	Systems engineering	3.0	90.0	8		328
4.1.2	Profiled package of educational components 02 "Blockchain technology and security of banking systems"	22.0	660.0			
ВП2.1	Decentralised systems	3.0	90.0	4		328
ВП2.2	Risk management	3.0	90.0	4		328
ВП2.3	Blockchain: basics and application examples	3.0	90.0	5		328
ВП2.4	Security of banking systems	4.0	120.0	6		328
ВП2.5	Protecting critical infrastructure facilities	3.0	90.0	7		328
ВП2.6	Organising document management with restricted access	3.0	90.0	8		328
ВП2.7	Security in social networks	3.0	90.0	8		328
4.1.3	Profiled package of educational components в 03 "Innovation Campus"	22.0	660.0			
ВП3.1	Basics of cybersecurity	3.0	90.0	4		328
ВП3.2	Development of corporate information systems (part 1)	3.0	90.0	4		328
ВП3.3	Development of corporate information systems (part 2)	3.0	90.0	5		328
ВП3.4	Databases for corporate information systems	4.0	120.0	6		328
ВП3.5	Architecture of corporate information systems	3.0	90.0	7		328
ВП3.6	Security and audit of wireless and mobile networks	3.0	90.0	8		328
ВП3.7	Protecting critical infrastructure facilities	3.0	90.0	8		328
4.2	Educational components of the student's free choice of specialised training according to the list	28.0	840.0			45%
ОКВП 1	ОК ВВ ПП 1	4.0	120.0		3	
ОКВП 2	ОК ВВ ПП 2	4.0	120.0		4	
ОКВП 3	ОК ВВ ПП 3	4.0	120.0		5	
ОКВП 4	ОК ВВ ПП 4	4.0	120.0		6	
ОКВП 5	ОК ВВ ПП 5	4.0	120.0		6	
ОКВП 6	ОК ВВ ПП 6	4.0	120.0		7	
ОКВП 7	ОК ВВ ПП 7	4.0	120.0		7	
4.3	Educational components of the student's free choice from the university catalogue	12.0	360.0			19%
ОКВ 1	ОК ВВ ЗП 1	4.0	120.0		5	
ОКВ 2	ОК ВВ ЗП 2	4.0	120.0		6	
ОКВ 3	ОК ВВ ЗП 3	4.0	120.0		7	
Total number for the training period		240.0	7200.0			

V. CURRICULUM PLAN

EPP code	Name of academic discipline	Distribution by semesters			Number of ECTS credits	Number of hours						Distribution of classroom hours per week and ECTS credits by semesters																Department
		Exams	Credit tests	Individual tasks		Total	Classroom			Individual work	I year				II year				III year				IV year					
							Semesters				Semesters																	
							1		2		3		4		5		6		7		8							
							Number of weeks per semester																					
							20		20		20		20		20		20		20		20		20					
							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	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	21	22	23	24	25	26	27	28	29
1	Compulsory educational components				163.0	4890.0	2136.0	780.0	708.0	648.0	2754.0	24.0	30.0	25.0	30.0	21.0	26.0	17.0	20.0	15.0	19.0	8.0	8.0	12.0	15.0	18.0	15.0	
1.1	General training				57.0	1710.0	808.0	160.0	16.0	632.0	902.0	17.0	20.0	12.0	13.0	7.0	8.0	4.0	4.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	4.0	
ЗП 1	History and culture of Ukraine	1		A	4.0	120.0	48.0	16.0		32.0	72.0	3.0	4															310
ЗП 2	Foreign Language	8	7		4.0	120.0	56.0			56.0	64.0													2.0	2.0	2.0	2	273
ЗП 3	Ukrainian as a foreign language	6	3-5	A	12.0	360.0	176.0			176.0	184.0					2.0	2	2.0	2	2.0	2	2.0	2	2.0	2	2.0	2	275
ЗП 4	Physics	1		C	6.0	180.0	80.0	48.0	16.0	16.0	100.0	5.0	6															168
ЗП 5	Fundamentals of humanitarian and philosophical knowledge in professional activity	3		A	4.0	120.0	48.0	16.0		32.0	72.0					3.0	4											307
ЗП 6	Higher mathematics	2	1	C	12.0	360.0	176.0	80.0		96.0	184.0	5.0	6	6.0	6													324
ЗП 7	Language of professional training	2	1	A	9.0	270.0	128.0			128.0	142.0	4.0	4.0	4.0	5.0													273
ЗП	Physical training		2-4		6.0	180.0	96.0			96.0	84.0			2.0	2.0	2.0	2.0	2.0	2.0									302
1.2	Special (professional) training				106.0	3180.0	1328.0	620.0	692.0	16.0	1852.0	7.0	10.0	13.0	17.0	14.0	18.0	13.0	16.0	13.0	17.0	6.0	6.0	8.0	11.0	14.0	11.0	
СП 1	Introduction to the specialty. Introductory practice		1		3.0	90.0	32.0	16.0	16.0		58.0	2.0	3															328
СП 2	Basics of programming	1			4.0	120.0	48.0	16.0	32.0		72.0	3.0	4															328
СП 3	Information and coding theory	1			3.0	90.0	32.0	16.0	16.0		58.0	2.0	3															328
СП 4	Legal regulation of cybersecurity		2		4.0	120.0	48.0	32.0		16.0	72.0			3.0	4													328
СП 5	Algorithms and data structures	2			5.0	150.0	64.0	32.0	32.0		86.0			4.0	5													328
СП 6	Physical bases of technical intelligence means	2			5.0	150.0	64.0	32.0	32.0		86.0			4.0	5													328
СП 7	Information security of the state		2		3.0	90.0	32.0	16.0	16.0		58.0			2.0	3													328
СП 8	Fundamentals of social engineering		3		4.0	120.0	48.0	16.0	32.0		72.0					3.0	4											328
СП 9	Mathematical foundations of cryptology	3			4.0	120.0	48.0	16.0	32.0		72.0					3.0	4											328
СП 10	Programming technologies	3			5.0	150.0	64.0	32.0	32.0		86.0			4.0	5													328
СП 11	Computer networks	3		CP	5.0	150.0	64.0	32.0	32.0		86.0			4.0	5													328
СП 12	Operating system architecture and security		4		5.0	150.0	64.0	32.0	32.0		86.0						4.0	5										328
СП 13	Programming tools	4			6.0	180.0	80.0	32.0	48.0		100.0						5.0	6										328
СП 14	Basics of cryptographic protection		4		5.0	150.0	64.0	32.0	32.0		86.0						4.0	5										328
СП 15	Fundamentals of building and protecting microprocessor systems	5			4.0	120.0	48.0	16.0	32.0		72.0									3.0	4.0							328
СП 16	Fundamentals of mathematical modelling of security systems	5			4.0	120.0	48.0	16.0	32.0		72.0									3.0	4							328
СП 17	Basics of steganographic information protection		5		5.0	150.0	64.0	32.0	32.0		86.0									4.0	5							328
СП 18	Security in information and communication systems		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4							328
СП 19	Web application development	6		CP	6.0	180.0	72.0	36.0	36.0		108.0											6.0	6					328
СП 20	Integrated information security systems	7			4.0	120.0	48.0	32.0	16.0		72.0													3.0	4			328
СП 21	Security of Internet things		7		3.0	90.0	32.0	16.0	16.0		58.0													2.0	3			328
СП 22	Web security		7	CP	4.0	120.0	48.0	16.0	32.0		72.0													3.0	4			328
СП 23	Comprehensive training		8	A	4.0	120.0	60.0	24.0	36.0		60.0															5.0	4	328
СП 24	Antivirus protection of information		8		4.0	120.0	60.0	24.0	36.0		60.0															5.0	4	328
СП 25	Machine learning basics for cybersecurity	8			3.0	90.0	48.0	24.0	24.0		42.0															4.0	3	328
2	Practical training				12.0	360.0					360.0												6.0				6.0	

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
ПП 1	Industrial practice*				6.0	180.0					180.0												6.0					
ПП 2	Technological practice*				6.0	180.0					180.0																6.0	
3	Атестація				3.0	90.0					90.0																3.0	
4	Selective educational components				62.0	1860.0	692.0	224.0	156.0		1168.0					3.0	4.0	7.0	10.0	8.0	11.0	13.0	16.0	11.0	15.0	6.0	6.0	
4.1	Profile training				22.0	660.0	248.0	136.0	112.0		412.0							4.0	6.0	2.0	3.0	4.0	4.0	2.0	3.0	6.0	6.0	
4.1.1	Profiled package of educational components 01 "Artificial Intelligence in Security Systems"				22.0	660.0	248.0	136.0	112.0		412.0							4.0	6.0	2.0	3.0	4.0	4.0	2.0	3.0	6.0	6.0	
БП1.1	Ethical hacking	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП1.2	Date of mining	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП1.3	Mathematical foundations of artificial intelligence	5			3.0	90.0	32.0	16.0	16.0		58.0									2.0	3							328
БП1.4	Python for artificial intelligence and machine learning	6			4.0	120.0	48.0	24.0	24.0		72.0											4.0	4					328
БП1.5	Genetic algorithms	7			3.0	90.0	32.0	16.0	16.0		58.0													2.0	3			328
БП1.6	Python for internet things	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
БП1.7	Systems engineering	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
4.1.2	Profiled package of educational components 02 "Blockchain technology and security of banking systems"				22.0	660.0	248.0	136.0	112.0		412.0							4.0	6.0	2.0	3.0	4.0	4.0	2.0	3.0	6.0	6.0	
БП2.1	Decentralised systems	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП2.2	Risk management	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП2.3	Blockchain: basics and application examples	5			3.0	90.0	32.0	16.0	16.0		58.0									2.0	3							328
БП2.4	Security of banking systems	6			4.0	120.0	48.0	24.0	24.0		72.0											4.0	4					328
БП2.5	Protecting critical infrastructure facilities	7			3.0	90.0	32.0	16.0	16.0		58.0													2.0	3			328
БП2.6	Organising document management with restricted access	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
БП2.7	Security in social networks	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
4.1.3	Profiled package of educational components в 03 "Innovation Campus"				22.0	660.0	248.0	136.0	112.0		412.0							4.0	6.0	2.0	3.0	4.0	4.0	2.0	3.0	6.0	6.0	
БП3.1	Basics of cybersecurity	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП3.2	Development of corporate information systems (part 1)	4			3.0	90.0	32.0	16.0	16.0		58.0							2.0	3									328
БП3.3	Development of corporate information systems (part 2)	5			3.0	90.0	32.0	16.0	16.0		58.0									2.0	3							328
БП3.4	Databases for corporate information systems	6			4.0	120.0	48.0	24.0	24.0		72.0											4.0	4					328
БП3.5	Architecture of corporate information systems	7			3.0	90.0	32.0	16.0	16.0		58.0													2.0	3			328
БП3.6	Security and audit of wireless and mobile networks	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
БП3.7	Protecting critical infrastructure facilities	8			3.0	90.0	36.0	24.0	12.0		54.0															3.0	3	328
4.2	Educational components of the student's free choice of specialised training according to the list				28.0	840.0	312.0				528.0					3.0	4.0	3.0	4.0	3.0	4.0	6.0	8.0	6.0	8.0			
ОКВП 1	ОК ВВ ПП 1		3		4.0	120.0	48.0	32.0	16.0		72.0					3.0	4.0											
ОКВП 2	ОК ВВ ПП 2		4		4.0	120.0	48.0	32.0	16.0		72.0							3.0	4.0									
ОКВП 3	ОК ВВ ПП 3		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4.0							
ОКВП 4	ОК ВВ ПП 4		6		4.0	120.0	36.0	24.0	12.0		84.0											3.0	4.0					
ОКВП 5	ОК ВВ ПП 5		6		4.0	120.0	36.0	24.0	12.0		84.0											3.0	4.0					
ОКВП 6	ОК ВВ ПП 6		7		4.0	120.0	48.0	32.0	16.0		72.0													3.0	4.0			
ОКВП 7	ОК ВВ ПП 7		7		4.0	120.0	48.0	32.0	16.0		72.0													3.0	4.0			
4.3	Educational components of the student's free choice from the university catalogue				12.0	360.0	132.0	88.0	44.0		228.0									3.0	4.0	3.0	4.0	3.0	4.0			
ОКВ 1	ОК ВВ ЗП 1		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4.0							

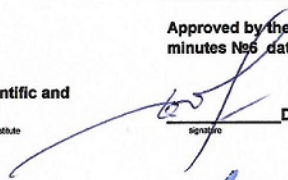
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
OKB 2	OK BB 3П 2		6		4,0	120,0	36,0	24,0	12,0		84,0											3,0	4,0					
OKB 3	OK BB 3П 3		7		4,0	120,0	48,0	32,0	16,0		72,0													3,0	4,0			
Total number for the training period					240,0	7200,0	2828,0				4372,0	24,0	30,0	25,0	30,0	24,0	30,0	24,0	30,0	23,0	30,0	21,0	30,0	23,0	30,0	24,0	30,0	
Number of hours per week												24,0		25,0		24,0		24,0		23,0		21,0		23,0		24,0		
Number of exams												4		4		4		3		3		3		2		4		
Number of credit tests												4		3		4		5		5		3		6		2		
Number of course projects (works)																1					1		1					
Number of disciplines per semester												8		7		8		8		8		6		8		6		

Individual tasks	
C	Calculation task
CG	Calculation and graphic task
A	Abstract
CP	Course project
CW	Course work

Approved by the Academic Council of NTU "KhPI"
minutes №6 dated 05.07.2024

Acting Vice-rector for scientific and
pedagogical work

name of the institute


signature Dmytro GOROVYI
name

Guarantor of the academic program
"Cybersecurity"

department name



signature

Serhii YEVSEIEV
name

Director of the Institute of Computer Science
and Information Technology

name of the institute


signature Mykhailo GODLEVSKYI
name

Head of the Cybersecurity Department

department name



signature

Serhii YEVSEIEV
name

* Practice and attestation is carried out by the graduating department



List 1 - Educational components of the free choice of a student of specialised training

EPP code	Name of academic discipline	Distribution by semesters			Number of ECTS credits	Number of hours						Distribution of classroom hours per week and ECTS credits by semesters																	Department			
		Exams	Credit tests	Individual tasks		Total	Classroom			Individual work	I year				II year				III year				IV year									
							including				Semesters																					
							1		2		3		4		5		6		7		8											
							Number of weeks per semester																									
							20		20		20		20		20		20		20		20		20									
Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	Classroom m hours	ECTS credits	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	21	22	23	24	25	26	27	28	29
4.2	Освітні компоненти вільного вибору студента профільної підготовки																															
ВДП 1	Legal regulation of information security		3		4.0	120.0	48.0	32.0		16.0	72.0					3.0	4.0														328	
ВДП 2	Intellectual property of security systems		3		4.0	120.0	48.0	32.0		16.0	72.0					3.0	4.0														328	
ВДП 3	Design templates		3		4.0	120.0	48.0	32.0	16.0		72.0					3.0	4.0														328	
ВДП 4	Methods and technologies of information warfare		4		4.0	120.0	48.0	32.0	16.0		72.0						3.0	4.0													328	
ВДП 5	Protecting e-commerce and multiservice systems		4		4.0	120.0	48.0	32.0	16.0		72.0						3.0	4.0													328	
ВДП 6	Databases with SQL and Python		4		4.0	120.0	48.0	32.0	16.0		72.0						3.0	4.0													328	
ВДП 7	Security at DEVOPS		5		4.0	120.0	48.0	32.0	16.0		72.0							3.0	4.0												328	
ВДП 8	Fundamentals of planning and administration of information resource access services		5		4.0	120.0	48.0	32.0	16.0		72.0								3.0	4.0											328	
ВДП 9	Risk theory in cybersecurity		5		4.0	120.0	48.0	32.0	16.0		72.0									3.0	4.0										328	
ВДП 10	Cryptanalysis methods		6		4.0	120.0	36.0	24.0	12.0		84.0													3.0	4.0						328	
ВДП 11	Internet science. Navigation in complex systems		6		4.0	120.0	36.0	24.0	12.0		84.0														3.0	4.0					328	
ВДП 12	Development of server applications (Java Spring Boot)		6		4.0	120.0	36.0	24.0	12.0		84.0														3.0	4.0					328	
ВДП 13	Neural networks		6		4.0	120.0	36.0	24.0	12.0		84.0														3.0	4.0					328	
ВДП 14	Cloud security		6		4.0	120.0	36.0	24.0	12.0		84.0														3.0	4.0					328	
ВДП 15	Testing mobile applications		6		4.0	120.0	36.0	24.0	12.0		84.0														3.0	4.0					328	
ВДП 16	Administering UNIX-like systems		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	
ВДП 17	Organisational support for information security		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	
ВДП 18	IT project management and security		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	
ВДП 19	Security and audit of wireless and mobile networks		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	
ВДП 20	Business intelligence		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	
ВДП 21	Evolutionary programming		7		4.0	120.0	48.0	32.0	16.0		72.0																3.0	4.0			328	