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The name of the module,	s	End-of-term test		ISS		rk		Se		semes	10 A		emest			emest		4 :	semes	ter	Total credits	1.602
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project (course work)	E	o-pi	Total	tal i	ectures	tory	Workshops	ar c	-	class	ts	-	class	ts	-	class	ts	-	class	ts	Cota	Coue
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1. State Component			1228	304	144	96	64		418	160	12	504	144	15	306		9				36	
1.1 Module «Management in Information Security																						
Systems»       1.1.1 Information Security Management	1		90	36	20		16		90	36	3						-				3	DPC-1
1.1.2 Governing the Information Security Department		2	90	36	22		14					90	36	3							3	UC-2
1.2 Module «Security of Corporate Information Systems»																						
1.2.1 Database Security	2		108	54	22	32						108	54	3				-			3	DPC-2
1.2.2 Specially Dedicated Operating Systems	2		108	54	22	32						108	54	3							3	DPC -3
1.2.3 Data Management in Network Applications     1.3 Module «Research Work»	1		108	54	22	32			108	54	3			-							3	DPC-4
1.3.1 Research Seminar	+	2,3	504									198		6	306		9	-			15	UC -1
1.3.2 Provision of Scientific, Technical and Innovative		1	220	70	36		34		220	70	6										6	UC-3
Activities Activities Higher Education Institution Component	+	-	2214	782	294	410		78	612	216	18	522	172	15	1080	394	33	-			66	
2.1 Module «Information Transmission Systems»																						
2.1.1 Telecommunication Systems	1		108	48	20	28			108	48	3	100		-				-			3	SC-1
2.1.2 Industrial Networks / Wireless Networks     2.2 Module «Data analysis»	2	-	198	54	18	36			-			198	54	6	-						6	SC -2 / SC -3 SC-4
2.2.1 Artificial Intelligence and Machine Learning	1		108	48	16	32			108	48	3										3	001
2.2.2 Applied Data Analysis	3	2	306	112	40	72						216	64	6	90	48	3				9	
2.3 Module «Information Security Hardware» 2.3.1 Computer Security Software and Hardware	+	1	198	60	18	42			198	60	6	-			-						6	SC-5
2.3.2 Technical Information Security	1		198	60	24	36			198	60	6										6	SC-6
2.3.3 Information Systems Design Technologies		2	108	54	20	34						108	54	3				_			3	SC-7
2.4 Module «Information Security Software» Business Analysis and Development of Requirements	-		-				-															- affer
2.4.1 for Information Security Systems/ Internet of Things Security Technologies	3		198	54	18	36									198	54	6				6	SC-8 / SC-9
Computer Steganography and Applied Cryptography / 2.4.2 Information Transmission and Security Systems with	3		198	54	20	34									198	54	6				6	SC-10 / SC-11
Chaotic Dynamics																				-		
2.5 Module «Innovation Activity» Commercialization of the Results of Research	+	-							-			-										
2.5.1 Activities		3	108	44	20			24					-	24	108		3		1		3	SC-12
2.5.2 Legal Foundation for Innovation		3	108	44	20			24			1.00%	10.00	0.0-05	1.74	108	44	3			1.1.1.1	3	SC-13

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| Startup Project Management   |  | 3  | 198   | 54  | 24  |  |   | 30   |   |   
   
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   | 115  | 6   | SC-14  |
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| Load Information Systems Design  |  | 3  | 90  | 48  | 18  | 30   |   |  |   |   
   
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  | 48  | 3   |   | | | | | | | |
   |  | 3   | SC-15 / SC-16  |
| Object Oriented Analysis and Design / Virtualization<br>and Containerization Technologies in Cloud Computing |  | 3  | 90  | 48  | 18  | 30   |   |  |   |   
   
   |  |   |  |   
  | 90   
  | 48  | 3   |   |                            
   |  | 3   | SC-17 / SC-18  |
| Optional Subjects  |  |  | /108  | /56   | /30   |  | /26   |  | /108  | /56   
   
   | /3   |   |  |   
  |  
  |   |   |   |                            
   |  | /3  |  |
| Creative Teaching Techniques at Higher School /<br>Pedagogy and Psychology of Higher Education               |  | /1   | /108  | /56   | /30   |  | /26   |  | /108  | /56   
   
   | /3   |   |  |   
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  |   |   |   |                            
   |  | /3  | UC-4   |
| Series of Disciplines for Candidate<br>Exams and Additional Training   |  |  | /568  | /316  | /96   | /36  | /140  | /44  | /358  | /202  
   
   | /6   | /210  | /114   | /9  
  |  
  |   |   |   |                            
   |  | /15   |  |
| Philosophy and Methodology of Science <sup>1</sup>   | /2   |  | /240  | /104  | /60   |  |   | /44  | /140  | /60   
   
   |  | /100  | /44  | /6  
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  |   |   |   |                            
   |  | /6  | UC-5   |
| Foreign Language for Professional Communication /<br>Foreign Language <sup>1</sup>                           | /2   | /1   | /220  | /140  |   |  | /140  |  | /110  | /70   
   
   | /3   | /110  | /70  | /3  
  | 3  
  |   |   |   |                            
   |  | /6  | UC-6   |
|  |  | /1   | /108  | /72   | /36   | /36  |   |  | /108  | /72   
   
   | /3   |   |  |   
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   |  | /3  | UC-7   |
| umber of Hours   |  |  | 3442  | 1086  | 438   | 506  | 64  | 78   | 1030  | 376   
   
   | 30   | 1026  | 316  | 30  
  | 1386   
  | 394   | 42  |   |                            
   |  | 102   |  |
| umber of Hours per Week  |  |  |   |   |   |  |   |  |   | 21  
   
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| umber of Exams   |  |  | 11  |   |   |  |   |  |   | 5   
   
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| umber of End-of-term tests   |  |  | 12  |   |   |  |   |  |   | 2   
   
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|  | Startup Project Management     Module «Information Technology»     Methods of Programming Applied Problems / High-Load Information Systems Design     Object Oriented Analysis and Design / Virtualization and Containerization Technologies in Cloud Computing     Optional Subjects     Creative Teaching Techniques at Higher School / Pedagogy and Psychology of Higher Education     Series of Disciplines for Candidate     Exams and Additional Training     Philosophy and Methodology of Science <sup>1</sup> | Startup Project Management   Module «Information Technology»     Methods of Programming Applied Problems / High-Load Information Systems Design   Object Oriented Analysis and Design / Virtualization and Containerization Technologies in Cloud Computing     Optional Subjects   Creative Teaching Techniques at Higher School / Pedagogy and Psychology of Higher Education     Series of Disciplines for Candidate   2     Philosophy and Methodology of Science 1   /2     Foreign Language 1   /2     Information Technologies: Basics 1   umber of Hours     umber of Hours   umber of Exams | Startup Project Management   3     Module «Information Technology»   3     Methods of Programming Applied Problems / High-<br>Load Information Systems Design   3     Object Oriented Analysis and Design / Virtualization<br>and Containerization Technologies in Cloud Computing   3     Optional Subjects   4     Creative Teaching Techniques at Higher School /<br>Pedagogy and Psychology of Higher Education   71     Series of Disciplines for Candidate<br>Exams and Additional Training   72     Philosophy and Methodology of Science 1   72     Foreign Language for Professional Communication /<br>Foreign Language 1   71     Information Technologies: Basics 1   71     umber of Hours   71     umber of Hours per Week   71 | Startup Project Management3198Module «Information Technology»390Methods of Programming Applied Problems / High-<br>Load Information Systems Design390Object Oriented Analysis and Design / Virtualization<br>and Containerization Technologies in Cloud Computing390Optional Subjects/108Creative Teaching Techniques at Higher School /<br>Pedagogy and Psychology of Higher Education/1/108Series of Disciplines for Candidate<br>Exams and Additional Training/2/240Philosophy and Methodology of Science 1/2/2Information Technologies: Basics 1/1/108umber of Hours3442umber of Hours per Week<br>umber of Exams11 | Startup Project Management319854Module «Information Technology»39048Methods of Programming Applied Problems / High-<br>Load Information Systems Design39048Object Oriented Analysis and Design / Virtualization<br>and Containerization Technologies in Cloud Computing39048Optional Subjects/108/56Creative Teaching Techniques at Higher School /<br>Pedagogy and Psychology of Higher Education/1/108/56Series of Disciplines for Candidate<br>Exams and Additional Training/2/240/104Philosophy and Methodology of Science 1/2/240/104Foreign Language for Professional Communication /<br>Foreign Language 1/1/108/72umber of Hours34421086umber of Hours per Week<br>umber of Exams11 | Startup Project Management31985424Module «Information Technology»3904818Methods of Programming Applied Problems / High-<br>Load Information Systems Design3904818Object Oriented Analysis and Design / Virtualization<br>and Containerization Technologies in Cloud Computing3904818Optional Subjects/108/56/30Creative Teaching Techniques at Higher School /<br>Pedagogy and Psychology of Higher Education/1/108/56/30Series of Disciplines for Candidate<br>Exams and Additional Training/2/240/104/60Philosophy and Methodology of Science 1/2/240/140/60Foreign Language 1/1/108/72/36umber of Hours34421086438umber of Hours per Week1111 | Startup Project Management   3   198   54   24     Module «Information Technology»   3   90   48   18   30     Methods of Programming Applied Problems / High-<br>Load Information Systems Design   3   90   48   18   30     Object Oriented Analysis and Design / Virtualization<br>and 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	IV. Internsl	hip	Контре	V.R	Research		VI. Final Certification					
Internship Title	Semester	Weeks	Credits	Semester	Weeks	Credits	- /////					
Research	4	4	6	4	8	12	Master's Thesis					

## **VII.** Competence Matrix

Competence Code	Competence	Module Code Discipline Code
UC-1	Abilities to use the scientific cognition techniques (analysis, comparison, systematization, abstracting, modeling, data verification, decision-making, etc.) in independent research activities, to generate and to realize innovative ideas	1.3.1
UC-2	Abilities to apply management techniques in classical management problems, including solving non-standard problems	1.1.2
UC-3	Abilities to apply the results of research and development work to implement innovative projects	1.3.2
UC-4	Ability to realize pedagogical activities in educational institutions; to master and introduce the effective educational and information communication technologies, pedagogical innovations	3.1
UC-5	Mastering scientific cognition methods; ability to analyze the content and level of philosophical-methodological problems when accomplishing the tasks of research and innovative activities	4.1
UC-6	Mastering of foreign languages for communication in interdisciplinary and research fields, in different forms of international collaboration, research and innovative activities	4.2
UC-7	Skills to use advanced information technologies for solving of research and innovative problems	4.3
DPC-1	Abilities to conduct an audit of the security of information systems, based on the results of monitoring intelligently to make decisions on performing changes to the information security system	1.1.1
DPC-2	Abilities to develop databases for solving applied problems in the field of information security	1.2.1
DPC-3	Ability to install and configure specially dedicated operating systems in accordance with security requirements	1.2.2
DPC-4	Developing network applications for solving applied problems in the field of information security	1.2.3
SC-1	Mastering the methods of designing telecommunication systems, analyzing networks and information transmission systems	2.1.1
SC-2	Mastering the design methods of data transmission networks connecting various sensors, executive mechanisms and industrial controllers	2.1.2
SC-3	Mastering methods of analysis, design and deployment of wireless networks and services	2.1.2
SC-4	Mastering data mining methods for solving scientific and applied problems	2.2
SC-5	Mastering the design methods of information security systems and methods for assessing the sensivity of information transmission, storage and processing systems, be able to assess the effectiveness of information security	2.3.1
SC-6	Mastering the methods of development and application of technical tools and systems to secure information and ensure electromagnetic compatibility of radioelectronic systems	2.3.2
SC-7	Applying modern CAD technologies to design intelligent information and measurement systems	2.3.3
SC-8	Abilities to develop requirements for information systems, including information security and information protection systems	2.4.1
SC-9	Mastering the methods of providing the systems of the Internet of Things; abilities to develop information security systems for devices and networks of the Internet of Things	2.4.1
SC-10	Mastering methods of applied steganography for establishing secure data transmission via open channels	2.4.2
SC-11	Mastering the methods of constructing and analyzing systems and tools for ensuring the security of information using deterministic chaos in modern telecommunication networks	2.4.2
SC-12	Skills to building mutually beneficial commercial relations in the implementation of the research activity results in the field of production and services	2.5.1
SC-13	Knowledge on the legal and organizational foundations of the state innovation policy and innovation activity in the Republic of Belarus; abilities to apply legal knowledge to organize and carry out innovative activities	2.5.2
SC-14	Skills to organizing innovative activities, assessing innovative and technological risks when creating and promoting new projects	2.5.3
SC-15	Programming skills in a high-level language for solving applied and research problems in the design of radioelectronic systems	2.6.1
SC-16	Mastering methods of building and managing computing systems, scaling techniques, load balancing and information flows, deployment strategies and dynamic scaling	2.6.1
SC-17	Possessing the principles of object-oriented decomposition of complex systems	2.6.2
SC-18	Mastering technologies for creating, configuring and securing isolated virtual hosts and containers in a cloud environment	2.6.2

It is developed on the basis of the curriculum for specialty 1-98 80 01 Information Security, approved on 22.02.2022 (Registration number P 98-178/y4.)

<sup>1</sup> General educational disciplines «Philosophy and Methodology of Science», «Foreign Language», «Information Technologies: Basics» are studied at the choice of a master's student. The study of general education disciplines «Philosophy and Methodology of Science», «Foreign Language» ends by the passing of the candidate exam, the general education discipline «Information Technologies: Basics» - the candidate end-of-term test.

Vice-Rector for Academic Affairs and Internationalization of Education Academic Affairs Department

Head

Dean of the Faculty of Radiophysics and Computer Technologies

Expert norm controller

<u>Huffs</u> <u>a 2022</u> <u>Natalia I. Morozova</u> <u>Muff</u> Dmitrii V. Ushakov <u>Alef</u> Anzhelika V. Kostenevich <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u> <u>2022</u>

All Konstantin V. Kozadaev L2» Od 2022

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