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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

APPROVED BY

Acting Director of the Institute

Advanced Engineering

A.A. Porokhnya

WORK PROGRAM OF THE DISCIPLINE
"Personal cybersecurity"

Field of study	11.03.02 Infocommunication Technologies and Communication Systems
Profile	Intelligent Data Processing in Infocommunication Systems and Networks
Year of start of training	2026
Form of study	Full-time
Implemented in a semester	1

Developed by

Associate Professor of the Department of Organization and Technology of Information Security, Faculty of Mathematics and Computer Science named after Professor N.I. Chervyakov
Anikuev S.V.

1. The purpose and objectives of mastering the discipline (module)

The purpose of studying the discipline "Personal Cybersecurity" is to obtain basic knowledge and skills covering all areas of cybersecurity and information security, security systems, network security, mobile device security, physical security, ethical and legal requirements, technologies and methods of protection and mitigation of consequences in the course of ensuring personal cybersecurity and business information security. The objectives of the discipline are:

- An introduction to the world of cybersecurity and the motivations of cybercriminals and cybersecurity professionals.
- Study of ethical requirements and laws in the field of information security and methods for developing security policies.
- Explore the functions of cybersecurity professionals and career opportunities.
- Gaining fundamental knowledge in various areas of security.
- Development of skills, abilities and abilities to identify cyberattacks and their signs, processes and countermeasures of information security.
- Acquisition of skills in safety management, the use of controls, protection and mitigation technologies.

2. Place of the discipline (module) in the structure of the educational program

The discipline "Personal Cybersecurity" belongs to optional disciplines.

3. List of planned learning outcomes in the discipline (module) correlated with the planned results of the development of the educational program

Code, formulation of competence	Indicator code, wording	Planned learning outcomes in the discipline (module), characterizing the stages of the formation of competencies, indicators
UK-1 is able to carry out search, critical analysis and synthesis of information, to apply a systematic approach to solving the tasks	ID-1 UK-1 identifies a problem situation, carries out its multivariate analysis and diagnosis based on a systematic approach	– identifies a problem situation, carries out its multivariate analysis and diagnostics based on a systematic approach
	ID-2 UK-1 searches, selects and systematizes information to determine alternative options for strategic solutions in a problem situation	– searches, selects and systematizes information to determine alternative options for strategic solutions in a problem situation
	ID-3 UK-1 identifies and assesses the risks of possible solutions to a problem situation, selects the best option for its security solution	– determines and assesses the risks of possible solutions to a problem situation, chooses the best option for its security solution

4. Scope of the academic discipline (module) and forms of control *

Volume of classes: total: 72 academic hours. 2	OFO, in acad. hours
Contact work:	
Lectures/from them practical training	
Laboratory work/from them practical training	
Practical training/of which practical training	36
Independent work	36
Forms of control	

Exam	-
Credit	Yes
Credit with a grade	-
Course work	no

* The discipline (module) provides for the use of e-learning, distance learning technologies (unless otherwise established by the educational standard)

5. The content of the discipline (module), structured by topics (sections) with an indication of the number of hours and types of classes

№	Section (topic) of the discipline and summary	Emerging competencies, indicators	Full-time				Current Forms control Academic Performance
			Contact work of students with the teacher / of them in the form of practical training, hours			Independent work, hours	
			Lectures	Practical exercises	Laboratory work		
1	Cybersecurity: A World of Specialists and Criminals 1. The world of cybersecurity 2. Cybercriminals and cybersecurity specialists 3. Typical threats 4. Spread of cyber threats LessonNo 1. Creating a cyber world	UK-1 ID-3			4	4	Interview
3	Cybersecurity cube 1. The Three Dimensions of the Cybersecurity Cube 2. Confidentiality, Integrity, Availability 3. Data states LessonNo 2. Communication in the cyber world	UK-1 ID-3			4	4	Interview
3	Cybersecurity Threat Countermeasures 1. Cybersecurity Technology, Policies and Procedures 2. IT Security Management Architecture LessonNo 3. Encrypting Files and Data	UK-1 ID-1			4	4	Interview
4	Cybersecurity threats, vulnerabilities, and attacks 1. Malware and malicious code 2. The Art and Methods of Deception 3. Attacks LessonNo 4. Checking the integrity of files and data	UK-1 ID-2			4	4	Interview

5	Ways to protect restricted information 1. Cryptography 2. Access Control Features 3. Hiding data Занятие No 5. WEP/WPA2 PSK/WPA2 RADIUS	UK-1 ID-2			4	4	Interview
6	Ways to Ensure Data Integrity 1. Types of integrity controls 2. Digital signatures 3. Ensuring data integrity Lesson No 6. Configuring VPN Transport Mode	UK-1 ID-2			4	4	Interview
7	The concept of "five nines" 1. High availability of resources 2. Measures to improve accessibility 3. Incident response 4. Disaster recovery Lesson No 7. Router and Switch Redundancy	UK-1 ID-1			4	4	Interview
8	Securing Cybersecurity Layers 1. System and Device Protection 2. Improve server reliability 3. Improving the reliability of the network infrastructure 4. Physical security Lesson No 8. Server Firewalls and Router ACLs	UK-1 ID-3			4	4	Interview
9	Cybersecurity Specialists 1. Security Levels 2. Ethical principles of work in the field of cybersecurity 3. Cybersecurity laws and responsibilities Lesson No 9. Practicing complex practical skills	UK-1 ID-1			4	4	Interview
	TOTAL for 1 semester				36	36	
	TOTAL				36	36	

6. Fund of assessment tools for the discipline (module)

The Assessment Tools Fund (WF) for a discipline (module) is based on a list of mastered competencies with an indication of indicators. The FAT provides objective control over the achievement of the planned learning outcomes. The FAT includes:

- description of indicators and criteria for assessing competencies at various stages of their formation, description of assessment scales;
- methodological materials that determine the procedures for assessing knowledge, skills, and (or) work experience that characterize the stages of competence formation (included in the methodological guidelines for those types of work that are provided for by the curriculum and provide for the assessment of the formation of competencies);
- standard assessment tools necessary for assessing knowledge, skills and the level of competence formation.

The FAT is an appendix to this program of the discipline (module).

7. Methodical instructions for students on mastering the discipline

Starting work, each student should take into account the following provisions.

The discipline (module) is built on a thematic principle, each topic is a logically complete section.

The lecture material is devoted to the consideration of the key, basic provisions of the courses and the explanation of educational tasks submitted for independent work of students.

Practical classes are conducted in order to consolidate the learned information, to acquire skills for its application in solving practical problems in the relevant subject area.

Independent work of students is aimed at independent study of additional material, preparation for practical and laboratory classes, as well as the performance of all types of independent work.

For the successful development of the discipline, it is necessary to perform all types of independent work, using the recommended sources of information.

8. Educational, methodological and information support of the discipline

8.1. List of basic and additional literature necessary for mastering the discipline (module)

8.1.1. List of basic literature:

1. Melnikov V. P., Kleymenov S. A., Petrakov A. M. ; ed. by S. A. Kleymenov. - 6th ed., ster. - Moscow : Academy, 2012. - 336 p. : ill., tabl. - (Higher professional education. - Grief: dop. UMO. - Bibliogr.: p. 327-328. - ISBN 978-5-7695-9222-5

2. Network protection based on CiscoSystems technologies. Practical course / A.N. Andronchik. - Yekaterinburg : Ural University Press, 2014. - 179 p. - ISBN 978-5-7996-1201-6

8.1.2. List of additional literature:

1. Kozlov V. E. Teoriya i praktika bor'by s komp'yuternoy prestupnosti [Theory and practice of combating computer crime]. - Moscow, Goryachaya liniya-TELEKOM Publ., 2002. - 336 p. - Bibliogr.: p. 325-332 (150 titles). - ISBN 5-93517-072-8

2. Shangin, V. F.
 Protection of Computer Information. Effective Methods and Means Elektronnyi resurs / V. F. Shangin. - Zashchita komp'yuternoy informatsii. Effektivnye metody i sredstva, 2019-04-19. - Saratov : Profobrazovaniye, 2017. - 544 p. - The book is in the premium version of EBS IPRBOOKS. - ISBN 978-5-4488-0074-0

8.2. List of educational and methodological support for students' independent work in the discipline (module)

1. Methodological recommendations for the implementation of laboratory work in the academic discipline "Personal Cybersecurity".

8.3. List of resources of the information and telecommunication network "Internet" necessary for mastering the discipline (module)

1. Biblioclub.RU // EBS "University Library ONLINE": [site]. — URL: (date of access: 12.02.2024).
2. Access to databases. — Text: electronic // Digital platform "East View": [site]. — URL: (date of access: 12.02.2024).
3. Intelligent Search. — Text: electronic // Website of the European Patent Office in the Espacenet service: [site]. — URL: (date of access: 12.02.2024).
4. Lan. Electronic Library System— Text: electronic // Consortium of Network Electronic Libraries EBS "Lan": [site]. — URL: (date of access: 04.02.2024).
5. Digital educational resource IPR SMART // EBS IPR SMART: [site]. — URL: <https://www.iprbookshop.ru/> (data obrashcheniya: 12.02.2024).
6. EBS "Yurayt". — Text: electronic // Yurayt. Educational platform: [site]. — URL: (date of access: 12.02.2024).
7. EBS IPRbooks. — Text: electronic // IPR SMART: [site]. — URL: (accessed 12.02.2024).
8. Internet search engines Yandex, Rambler, Google, etc.
9. Znanium.com. EBSZnanium: [website]. URL: <https://znanium.com/> (accessed: 12.02.2024).

9. List of information technologies used in the implementation of the educational process in the discipline (module), including a list of software and information reference systems

When giving lectures, computer equipment, demonstration of presentation multimedia materials, software for web conferencing are used.

When conducting practical classes and laboratory work, information and reference systems, an interactive whiteboard for team collaboration and a service for joint work are used.

When implementing a discipline using e-learning and distance learning technologies, the material can be posted in the e-learning system.

To provide remote access, including in the case of the use of e-learning, distance learning technologies, software for web conferencing, desktop virtualization and an e-learning system are used.

Information Reference Systems

Information and reference and information and legal systems used in the study of the discipline:

1. "ConsultantPlus" (list of information systems). "ConsultantPlus": [site]. — URL: (date of access: 12.02.2024).
2. "GARANT" (set "GARANT-Maximum"). GARANT.RU Information and legal portal: [site]. — URL: (date of access: 12.02.2024).

10. Description of the material and technical base necessary for the implementation of the educational process in the discipline (module)

Lectures	Classroom for training sessions, equipped with multimedia equipment and technical teaching aids: magnetic marker board, projector, computer with the necessary set of licensed software
Practical exercises	A classroom for conducting training sessions, equipped with modern computer technology, multimedia equipment and technical training aids, providing practical training in accordance with the direction (profile) of the bachelor's program "Organization and technologies of information security (in the industry or in the field of professional activity)".
Independent work	Room for independent work of students, equipped with computer equipment with the ability to connect to the Internet and the ability to access the electronic information and educational environment of the university

11. Features of mastering the discipline (module) by persons with disabilities

Students with disabilities are provided with special textbooks, teaching aids and didactic materials, special technical teaching aids for collective and individual use, the services of an assistant (assistant) who provides students with the necessary technical assistance, as well as the services of sign language interpreters and typhlo-sign interpreters.

The development of a discipline (module) by students with disabilities can be organized together with other students, as well as in separate groups.

The development of a discipline (module) by students with disabilities is carried out taking into account the characteristics of psychophysical development, individual capabilities and health status.

In order to ensure the accessibility of higher education under the educational program by persons with disabilities when mastering the discipline (module), the following is ensured:

1) for visually impaired persons:

- the presence of an assistant who provides the student with the necessary technical assistance, taking into account individual characteristics (helps to take a workplace, move, read and complete the task, including by writing down by dictation),

- written tasks, as well as instructions on the procedure for their implementation, are drawn up in enlarged font,

- special textbooks, teaching aids and didactic materials (with large print or audio files),

- individual uniform lighting of at least 300 lux,

- if necessary, the student is provided with a magnifying device to complete the task;

2) for persons with hearing disabilities:

- the presence of an assistant who provides the student with the necessary technical assistance, taking into account individual characteristics (helps to take a workplace, move, read and complete the task, including by writing down by dictation),

- the availability of sound-amplifying equipment for collective use is ensured, if necessary, the student is provided with sound-amplifying equipment for individual use;

- is provided with appropriate sound means of reproducing information;

3) for persons with disabilities with musculoskeletal disorders (including those with severe disorders of the motor functions of the upper extremities or the absence of upper limbs):

- written tasks are performed on a computer with specialized software or dictated to an assistant;

- At the request of the student, tasks can be performed orally.

12. Features of the implementation of the discipline using distance educational technologies and e-learning

According to Part 1 of Article 16 of the Federal Law of December 29, 2012 No 273-FZ "On Education in the Russian Federation", e-learning is understood as the organization of educational activities with the use of information contained in databases and used in the implementation of educational programs and information technologies, technical means, as well as information and telecommunication networks that ensure the transmission of this information through communication lines, the interaction of students and teachers. Distance educational technologies are understood as educational technologies implemented mainly with the use of information and telecommunication networks with indirect (at a distance) interaction of students and teachers.

The discipline can be implemented using distance learning technologies and e-learning in whole or in part. The components of the discipline's teaching materials (the discipline's work program, assessment and methodological materials, forms of certification), implemented using distance learning technologies and e-learning, contain an indication of their use.

When organizing educational activities with the use of distance educational technologies and e-learning, asynchronous and synchronous ways of interacting with participants in educational relations through the information and telecommunication network "Internet" may be provided.

When using distance learning technologies and e-learning, the schedule for the discipline indicates: ways of interaction between participants in educational relations through the information and telecommunication network "Internet" (videoconferencing, ET - electronic testing); links to the electronic information and educational environment of NCFU, to educational platforms and resources of other organizations to which open access is provided through the information and telecommunication network "Internet"; for synchronous learning - the time of online classes and teachers; for asynchronous learning - the authors of online courses.

When organizing intermediate certification using distance learning technologies and e-learning, the Methodological Recommendations for the use of technical means that ensure the objectivity of results during intermediate and state final certification in educational programs of higher education - bachelor's programs, specialist programs and master's programs using distance educational technologies are used (Letter of the Ministry of Education and Science of Russia dated 07.12.2020 No MN-19/1573-AN "On the direction of methodological recommendations").

The implementation of the discipline using e-learning and distance learning technologies is carried out using the electronic information and educational environment of NCFU, to which students have access through the information and telecommunication network "Internet", or using the resources of other organizations, including platforms that provide services for video conferences, online meetings and distance learning (MTS-Link), as well as using the capabilities of social networks for communication between students and teachers.

Educational and methodological support of the discipline implemented with the use of e-learning and distance educational technologies includes a work program, teaching aids or a course of lectures presented in electronic form, guidelines for the implementation of various types of educational activities of students provided for by the discipline, and other educational materials posted in the information and educational environment of NCFU.