EDUCATIONAL PROGRAM FOR HIGHER EDUCATION

<table>
<thead>
<tr>
<th>Training program</th>
<th>10.03.01 Information Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction (profile)</td>
<td>Organization and technology of information security</td>
</tr>
<tr>
<td>Institute</td>
<td>of Information technology and telecommunications</td>
</tr>
<tr>
<td>Mode of study</td>
<td>intramural</td>
</tr>
<tr>
<td>Year of admission</td>
<td>2020</td>
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</tbody>
</table>

Stavropol, 2020
EP HE developed by
Candidate of Technical Sciences, Assistant professor, Pentenko Vyacheslav Ivanovich
Candidate of Technical Sciences, Assistant professor, Minkina Tat'yana Vladimitovna
(Degree, Academic status, Initials of developers of EP)

EP HE considered and approved at the meeting of the department
Organization and technology of information security
(name of graduate)

Record of sub-department
10.03 2020. Record № 9

Acting head of sub-department
V.I. Petrenko
(Signature) (Initials)

COORDINATED WITH:
Representative of the employer
N.G. Demurchev
(Signature) (Initials)

The meeting of Academic and methodological commission of Institute of Information technology and telecommunications 10.03, 2020. Record № 10
(name of institute)

Chairman of Academic and methodological on Institute
N.A. Poddubnaya
(Signature) (Initials)
CONTENT

1. Main principles .............................................................................................................. 4
   1.1. List of normative documents for development of educational program of higher education .............................................................................................................. 4
   1.2. Common characteristics of educational program of higher education ........................................................................................................... 5
       1.2.1. Mission of educational program of higher education .................. 5
       1.2.2. Aim of educational program of higher education ....................... 5
       1.2.3. Acquisition period of educational program ........................................ 5
       1.2.4. Workload of educational program of higher education .............. 6
   1.3. Requirements for preparation level necessary for acquisition of educational program of higher education ................................................................. 6
   1.4. Field of professional activity for graduate students/ field and field professional activities of graduates, objects of professional activity for graduate student/forms of professional activity for graduate student .................................................. 7
   1.5. Tasks of professional activity for graduate student ........................................ 7
   1.6. Competencies of graduate student formed as a result of acquisition of educational program of higher education ............................................................... 8
   1.7. Documents, regulating content and management of educational process when implementing educational program of higher education ....................... 11
       1.7.1. Calendar educational schedule ......................................................... 11
       1.7.2. Curriculum ...................................................................................... 11
       1.7.3. Work programs for educational disciplines, assessment tools ....... 12
       1.7.4. Internship programs, assessment tools ........................................... 14
   2. OTHER COMPONENTS DEVELOPED BY THE DECISION OF THE GRADUATING DEPARTMENT ......................................................................................... 18
   2.1. Personnel support ......................................................................................... 18
   2.2. Educational-methodological and information support ......................... 18
   2.3. Material-technical support ......................................................................... 19
   2.4. Financial support ....................................................................................... 21
   2.5. Characteristics of university environment providing the development of general cultural competencies of graduate students ............................... 21
1. Main principles

The educational program of higher education of the specialization 10.03.01 "Information Security", the direction (profile) "Organization and technology of information security", is a system of documents developed and approved by FSAEI of HE "North Caucasus Federal University" taking into account the requirements of the labor market on the basis of the Federal State Educational Standard for the relevant direction of higher education.

The EP regulates the objectives, expected results, content, conditions and technologies for the implementation of the educational process, assessment of the quality of bachelor's training in this area of training and includes: curriculum, work programs of training courses, subjects, disciplines and other materials that ensure the quality of training of students, programs educational and production internship, a calendar educational schedule and teaching materials to ensure the implementation of appropriate educational technology.

Direction (profile) – organization and technology of information security
Awarded qualification – bachelor.
Mode of study – full-time.
Language of the educational program – Russian and English.

When implementing this educational program, it is possible to use distance learning technologies.

If there are students with disabilities, this educational program is adapted to the recommendations of the psychological, medical and pedagogical commission, and the individual program of rehabilitation of the disabled persons. The educational process for persons with disabilities is carried out in accordance with the “Regulations on the organization of the educational process for persons with disabilities and in the federal state autonomous educational institution of higher education “North Caucasian Federal University”, adopted by the Academic Council of NCFU Protocol No. 5 of November 24, 2016.”

1.1. List of normative documents for development of educational program of higher education

The regulatory legal framework for the development of the bachelor educational program is:


– Federal State Educational Standard of Higher Education in the direction of training 10.03.01 “Information Security” (bachelor), approved by order of the Ministry of Education and Science of the Russian Federation No. 1515 of December 1, 2016 (Registered in the Ministry of Justice of Russia December 20, 2016 No. 44821);


– The Order of the Ministry of Education and Science of the Russian
Federation No. 301 of April 5, 2017 “On Approval of the Procedure for Organizing and Implementing Educational Activities in Higher Education Educational Programs - Bachelor Programs, Specialty Programs, Master Programs”;


- Regulation on the development of educational programs of higher education of directions of training and specialties in the federal state autonomous educational institution of higher education "North Caucasus Federal University" (new edition), adopted by the Academic Council of NCFU protocol No. 4 of December 07, 2017

- other regulations of the FSFEI of HE "NCFU”.

1.2. Common characteristics of educational program of higher education

1.2.1. Mission of educational program of higher education

The overall mission of the EP is determined by the high demand of modern society for specialists who simultaneously own analytical and information methods in all spheres of activity, production, information, management, research.

The specific mission of this EP, implemented at the North Caucasus Federal University (FSAEI of HE "NCFU"), is to prepare bachelors of information security with a high theoretical and practical level directly in the field of information protection and information technology, which allows to realize further professional skills of bachelors in various fields of activity - organizations, authorities, research centers, in higher education institutions, etc.

In the formation of the EP, the specificity of the FSAEI of HE "NCFU" as a federal university, the features of scientific schools of FSAEI of HE "NCFU", as well as the needs of the labor market for information security specialists were taken into account.

1.2.2. Aim of educational program of higher education

The purpose of the EP is to develop students' personal qualities, as well as the formation of general cultural, professional and specialized competences in accordance with the requirements of the Federal State Educational Standard of Higher Education in the direction of training 10.03.01 "Information Security".

1.2.3. Acquisition period of educational program

The period for the development of the EP of HE of the specialization 10.03.01 "Information Security" in full-time education, including holidays, provided after passing the state final certification, regardless of the educational technology used, is 4 years.

The period for the development of the OP of HE of the specialization 10.03.01 “Information Security” - when studying on an individual curriculum in full-time education, including holidays, provided after passing the state final certification, regardless of the educational technology used, is 4 years.
1.2.4. **Workload of educational program of higher education**

The standard workload of Educational program of higher education of 10.03.01 «Information security» is 240 c.p.

The workload of the bachelor program in the direction of training 10.03.01 "Information Security" direction (profile) "Organization and technology of information protection" is 240 (c.p.), without taking into account electives.

<table>
<thead>
<tr>
<th>Content</th>
<th>Workload in credit points</th>
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<tbody>
<tr>
<td>Theoretical study</td>
<td>213</td>
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<tr>
<td>Examination periods</td>
<td></td>
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<tr>
<td>internship, incl.</td>
<td>21</td>
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<tr>
<td><em>Educational internship</em></td>
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<tr>
<td><em>Production internship</em></td>
<td>6</td>
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<tr>
<td><em>Pre-degree internship</em></td>
<td>6</td>
</tr>
<tr>
<td>State Final Certification, incl.</td>
<td>6</td>
</tr>
<tr>
<td><em>Preparation to defense and defense of final qualifying work</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Preparation for the exam and passing the exam</em></td>
<td>3</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>240</strong></td>
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<table>
<thead>
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<th>Content</th>
<th>Workload in credit points</th>
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<tbody>
<tr>
<td>Theoretical study and distributed internships</td>
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<tr>
<td>Examination periods</td>
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<tr>
<td>internship, incl.</td>
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<tr>
<td><em>Educational internship</em></td>
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</tr>
<tr>
<td><em>Production internship</em></td>
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<tr>
<td><em>Pre-degree internship</em></td>
<td>4</td>
</tr>
<tr>
<td>State Final Certification, incl.</td>
<td>4</td>
</tr>
<tr>
<td><em>Preparation to defense and defense of final qualifying work</em></td>
<td>2</td>
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<tr>
<td><em>Preparation for the exam and passing the exam</em></td>
<td>2</td>
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<tr>
<td>Holidays</td>
<td>34</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>208</strong></td>
</tr>
</tbody>
</table>

1.3. **Requirements for preparation level necessary for acquisition of educational program of higher education**

The applicant must:

1. Have a state document on secondary (complete) general education or secondary vocational education.
2. Successfully pass the entrance test.

Enrollment is carried out on the basis of competitive selection in accordance with the “Rules for admission to study in educational programs of higher education - bachelor programs, specialty programs, graduate programs for the 2019/2020 academic year”.

1.4. **Field of professional activity for graduate students/ field and field professional activities of graduates, objects of professional activity for graduate student/ forms of professional activity for graduate student**

The field of professional activity of graduates who have mastered the bachelor program includes areas of science, engineering and technology, covering a set of problems related to ensuring the security of information objects in the presence of threats in the information sphere.

The objects of professional activity of graduates who have mastered the undergraduate program are:

- objects of informatization, including computer, automated, telecommunication, information and information-analytical systems, information resources and information technologies in the conditions of existence of threats in the information sphere;
- technologies for ensuring information security of objects of various levels (system, system object, object components) that are associated with the information technology used at these objects;
- processes of information security management of protected objects.

The bachelor degree of the specialization 10.03.01 "Information Security" is preparing for the following types of professional activity:

- operational;
- design and technological;
- experimental research;
- organizational and management.

The bachelor degree of the specialization 10.03.01 “Information Security” is prepared according to the profile of the program “Organization and Technology of Information Security”.

1.5. **Tasks of professional activity for graduate student**

The bachelor degree of the specialization 10.03.01 "Information Security" should solve the following professional tasks in accordance with the types of professional activity and training profile:

**operational activities:**

- installation, configuration, operation and maintenance of the information security system components in working condition, taking into account the established requirements;
- administration of information security object subsystems;
- participation in the attestation of informatization objects for information security requirements and the audit of information security of automated systems;
**design and technological activities:**
- collection and analysis of source data for designing information protection systems, determining requirements, comparative analysis of subsystems for information security indicators;
- carrying out design calculations of elements of information security systems;
- participation in the development of technological and operational documentation;
- pre-feasibility study of design calculations;

**experimental research activities:**
- collection, study of scientific and technical information, domestic and foreign experience on the subject of research;
- conducting experiments according to a given method, processing and analysis of their results;
- conducting computational experiments using standard software;

**organizational and management activities:**
- implementation of organizational and legal support of information security of the object of protection;
- organization of work of small groups of performers;
- participation in the improvement of the information security management system;
- study and summarize the experience of other institutions, organizations and enterprises in the field of information security, including information of limited access;
- monitoring the effectiveness of implementing the information security policy of the protected object.

Professional tasks in accordance with the “Organization and Technology of Information Security” profile:
- conducting a joint analysis of the functional process of the object of protection and its information components in order to identify possible sources of information threats, their probable goals and tactics;
- development of a set of measures to ensure the information security of the facility and the organization of its implementation and subsequent maintenance.

1.6. Competencies of graduate student formed as a result of acquisition of educational program of higher education

As a result of mastering a bachelor’s program, a graduate must have general cultural, general professional, professional, and professionally specialized competencies that correspond to their bachelor’s degree programs.

In the result acquisition of EP, student must possess the following general cultural competences (GCC):
the ability to use the basics of philosophical knowledge to form the ideological position (GCC -1);
the ability to use the basics of economic knowledge in various fields of activity (GCC -2);
the ability to analyze the main stages and patterns of the historical development of Russia, its place and role in the modern world for the formation of citizenship and the development of patriotism (GCC -3);
the ability to use the basics of legal knowledge in various fields of activity (GCC -4);
the ability to understand the social significance of their future profession, to have a high motivation to perform professional activities in the field of information security and the protection of the interests of individuals, society and the state, to comply with the standards of professional ethics (GCC -5);
the ability to work in a team, tolerantly perceiving social, cultural and other differences (GCC -6);
the ability to communicate in oral and written forms in Russian and foreign languages to solve problems of interpersonal and intercultural interaction, including in the field of professional activity (GCC -7);
the ability of self-organization and self-education (GCC -8);
the ability to use the methods and means of physical culture to ensure full social and professional activities (GCC -9).

After acquisition of EP, a graduate student must possess the following general professional competences (GPC):
the ability to analyze physical phenomena and processes to solve professional problems (GPC -1);
the ability to apply the appropriate mathematical apparatus for solving professional problems (GPC -2);
the ability to apply the provisions of electrical engineering, electronics and circuitry to solve professional problems (GPC -3);
the ability to understand the value of information in the development of modern society, to apply information technology to search and process information (GPC -4);
the ability to use regulatory legal acts in professional activities (GPC -5);
the ability to apply first aid techniques, methods and means of protecting the personnel of the enterprise and the population in emergency situations, to organize measures for labor protection and safety (GPC -6);
the ability to determine information resources subject to protection, threats to information security and possible ways to implement them based on an analysis of the structure and content of information processes and features of the protection object (GPC -7).

As a result of this OP, a graduate student should possess the following professional competencies:

operational activity:
– the ability to perform installation, configuration and maintenance of software, software and hardware (including cryptographic) and technical means of information protection (PC-1);
– the ability to use software systems, applications and special purposes, tools, languages and programming systems to solve professional problem (PC -2);
– the ability to administer information security subsystems of the protected object (PC -3);
– the ability to participate in the implementation of information security policies, apply an integrated approach to ensuring the information security of the protected object (PC -4);
– the ability to take part in the organization and maintenance of certification of information objects for information security requirements (PC -5);
– the ability to participate in the organization and conduct of control checks of the efficiency and effectiveness of the applied software, hardware and software and information security tools (PC -6);

**design and technological activity:**
– the ability to analyze source data for the design of subsystems and information security tools and participate in the feasibility study of relevant design solutions (PC -7);
– the ability to issue working technical documentation taking into account existing regulatory and methodological documents (PC -8);

**experimental research activity:**
– the ability to carry out the selection, study and synthesis of scientific and technical literature, regulatory and methodological materials, to make a review on the issues of information security in the profile of their professional activities (PC -9);
– the ability to analyze the information security of objects and systems for compliance with the requirements of standards in the field of information security (PC -10);
– the ability to conduct experiments according to a given method, processing, evaluation of the error and reliability of their results (PC -11);
– the ability to take part in conducting experimental studies of the information security system (PC -12);

**organizational and management activities:**
– the ability to participate in the formation, organize and maintain the implementation of a set of measures to ensure information security, manage the process of their implementation (PC-13);
– the ability to organize the work of a small group of performers in their professional activities (PC -14);
– the ability to organize the technological process of protecting information of limited access in accordance with the regulatory legal acts and regulatory guidance papers of the Federal Security Service of the Russian Federation, the Federal Service for Technical and Export Control (PC -15).
As a result of the development of this OP, the graduate must possess the following **professionally specialized competencies:**

- the ability to conduct a joint analysis of the functional process of the object of protection and its information components in order to determine the possible sources of information threats, their probable goals and tactics (PSC 2.1)
- the ability to develop a set of measures to ensure the information security of the facility and to organize its implementation and subsequent maintenance (PSC 2.2)

1.7. **Documents, regulating content and management of educational process when implementing educational program of higher education**

1.7.1. **Calendar educational schedule**

The calendar training schedule establishes the sequence and duration of theoretical training, exam sessions, practices, final (state final) certification, holidays. The schedule is designed in accordance with the requirements of the educational standard.

1.7.2. **Curriculum**

The curriculum specifies a list of disciplines (modules), practices, forms of midterms, final (state final) certification of students, other types of educational activities, indicating their volume in astronomical hours and credits, sequence and distribution by periods of study. In the curriculum, the volume of work of students in collaboration with a teacher (contact work of students with a teacher) (by type of training sessions) and independent work of students in astronomical hours and credit units is highlighted. For each discipline (module) and practice the form of intermediate certification of students is indicated.

The bachelor program includes the obligatory part (basic) and the variable part.

The bachelor program consists of the following blocks:

- Block 1 "Disciplines (modules)", which includes disciplines related to the basic part of the program, and disciplines related to its variable part;
- Block 2 "Internships", which fully relates to the variable part of the program;
- Block 3 "State final certification", which fully relates to the basic part of the program.

NCFU implements an educational program in terms of disciplines (exchange modules):

- Module 1: 6 semester, containing disciplines: Technical information protection (3 c.p.); Cryptographic methods of information security (3 c.p.); Protection of personal data in information systems (3 c.p.); Organizational and law support of information security (3 c.p.); Research work (1 c.p.); Mathematical foundations of control theory (3 c.p.); Security of operating systems (5 c.p.); Secure electronic document management (3 c.p.); Electroradio measurements
during special studies (3 c.p.); Production internship: Design and technological (3 c.p.).

- SFU implements an educational program in terms of disciplines (exchange modules):
  - Module 2: 6 semester, containing disciplines: Standards and preparation of engineering documentation (5 c.p.); Cryptographic methods of information security (5 c.p.); Technical protection of information (5 c.p.); Creative project (3 c.p.); Manufacturing practice: Design and technological (3 c.p.); Decision theory (5 c.p.); Organizational and legal support of information security (3 c.p.); Foreign language for professional purposes (1 c.p.); Elective courses in physical education (68h).

1.7.3. **Work programs for educational disciplines, assessment tools**

The educational program of higher education includes work programs of all academic disciplines (modules) of both the basic and the variable parts of the curriculum, including the disciplines of student choice.

The work programs of educational disciplines clearly articulate the final results of training with a competence-based approach in strict accordance with the acquired knowledge and skills in general for the educational program of the specialization “Information Security” 10.03.01 (profile “Organization and Technology of Information Protection”).

The structure and content of work programs of disciplines include:

- discipline name
- the list of planned learning outcomes in the discipline, correlated with the planned results of the development of the educational program;
- Indication of the place of discipline in the structure of the educational program;
- volume of discipline in credit units with an indication of the number of astronomical hours allocated for contact work of students with a teacher for relevant types of training sessions and for independent work of students;
- content of discipline, structured by topics (sections), indicating the number of astronomical and types of training sessions allotted for them;
- the list of teaching and methodological support for independent work of students in the discipline;
- The fund of evaluation tools for intermediate certification of students in the discipline;
- the list of basic and additional educational literature necessary for mastering the discipline;
- the list of Internet information and telecommunication resources necessary for mastering the discipline;
- Methodical instructions for students on the development of the discipline;
the list of information technologies used in the implementation of the educational process on the discipline, including the list of software and information reference systems (if necessary);

- description of material and technical base necessary for the implementation of the educational process on the discipline.

To certify the students for compliance with their personal achievements, with the gradual requirements of the educational program, the departments create funds of assessment tools for the current monitoring of academic performance and intermediate certification. These funds may include: quizzes and sample tasks for practical exercises, laboratory and quizzes, colloquia, tests and exams; tests and computer testing programs; approximate subject of term papers, essays, etc., as well as other forms of control, allowing to assess the degree of formation of students' competencies.

Assessment tools that accompany the implementation of each educational program are developed to test the quality of the formation of competencies and to be an effective means of not only assessment, but also mainly training.

The system of assessments for the current monitoring of academic performance and intermediate certification of students, the forms, procedure and frequency of the conduct are specified in the Regulation on the conduct of current monitoring of academic performance and intermediate certification of students in higher education – education programs for bachelors, specialty programs, master's program - in federal state autonomous educational institution for higher education «NORTH CAUCASUS FEDERAL UNIVERSITY» (as amended of December 07, 2017, protocol of the Academic Council of NCFU No. 4), adopted by the Academic Council of NCFU Protocol No.3 of October 26, 2017.

Students in FSAEI of HE «NCFU» pass not more than 6 exams and 10 tests for academic year during realization of mid-term examination. The specified number does not include tests for optional subjects, elective courses in physical culture and sports, as well as for internships and state final attestation.

NCFU has implemented a rating system for student’s knowledge assessment. It presumes compulsory organization of current and midterm monitoring for every discipline of curriculum (Regulations on organization of educational process based on rating system for student’s knowledge assessment FSAEI of HE «NCFU»).

In sub-department, assessment tools are developed for current check of progress of academic performance and for midterm examination.

They are placed in work programs and learning-methodological manuals. They include:

- control questions and typical tasks for practical classes, laboratory and control works, colloquia, tests, and examinations;
- databases of tests and computer test programs;
- exemplary topics for course papers/projects, essays;
- other forms of monitoring that allow to make assessment the level of competences forming for students.

The fund of assessment tools for final (state final) attestation is designed to
establish during the state attestation trials of graduates the fact of compliance (or non-compliance) with the level of their training with the requirements of the educational standard.

The final (state final) certification of a graduate of a higher educational institution is mandatory and is carried out after the development of the educational program in full.

The final (state final) certification includes the final state exam in the direction of training and the presentation of final qualifying work.

Assessment tools for state final attestation includes:
- list of competencies that students should master as a result of mastering an educational program;
- description of indicators and criteria for assessing competencies, as well as assessment scales;
- typical control tasks or other materials necessary for evaluating the results of mastering the educational program;
- methodical materials defining the procedures for evaluating the results of mastering the educational program.

1.7.4. Internship programs, assessment tools

In accordance with the Federal State Educational Standards of Higher Education of the specialization “Information Security” 10.03.01, in Block 2 “Practices” of the bachelor educational program there are educational and industrial including pre-diploma, practices

Types of educational internship:
- Internship in obtaining primary professional skills (4 semester, 2 weeks);
- Familiar internship (2 semester, 2 weeks);
- technological internship (8 semester, 2 weeks).

Types of manufacturing internships:
- design and technological internship (6 semester, 2 weeks);
- operational internship (8 semester, 2 weeks);
- pre-diploma internship (8 semester, 4 weeks).

Ways of conducting educational and industrial internships:
- stationary;
- away

During the educational and industrial internships, students form:
- primary professional skills;
- professional skills and professional experience;
- research skills.

Educational and industrial internships are mandatory and represent a type of training, directly focused on the professional and practical training of students.

Internships reinforce the knowledge and skills acquired by students as a result of the development of theoretical courses, develop practical skills and contribute to the integrated formation of general cultural, general professional, professional and professional-specialized competencies of students.
The content and procedure of the internship is regulated by the practice programs and the Regulations on the organization and conduct of the students' internships in higher education educational programs at the North State Federal University (new edition), adopted by the Academic Council of the NCFU Protocol No. 11 of 24.04.18.

The choice of places of internship for people with disabilities (LHA) is made taking into account the health of students and accessibility requirements.

Educational internship

Educational internship is carried out, as a rule, individually in organizations of any organizational and legal forms, in their structural subdivisions corresponding to the profile of students' professional training and practical tasks.

The objectives of the internships of acquiring primary professional skills and knowledge, of orientation and technological one is the formation of professional competencies through the application of the obtained theoretical knowledge, ensuring continuity and consistency in mastering students' professional activities, forms and methods of work, acquiring the professional skills necessary for work, educating executive discipline and skills independently solve the tasks.

In the process of the training program internship, graduates form the skills of professional work and solving practical problems. On the instructions of the department, bachelors can perform individual tasks in the form of collecting information and documents for developing case studies (practical tasks) based on the materials of the organization-base of practice during the internship period. Tasks can be given in the form of tables, analytical and reporting forms used in internship. Registration of tasks can be carried out in the form of a printed set of documents used in internship, with the text of the task and the necessary source data attached.

The location of the educational internship are enterprises, institutions and organizations with which agreements have been concluded for the conduct of educational internship (practice base), as well as the structural units of the FSAEI of HE "NCFU:"

1. LLC Stilsoft;
2. Administration of the Leninsky district of the city of Stavropol;
3. JSC "Concern Energomera";
4. PAO Stavropol Radio Plant "Signal";
5. LLP "NPO Engineering Systems";
6. CJSC "Sirius";
7. GKU IC "Regional IT Center";
8. LLC Stavropol Information Technologies;
9. Chamber of Commerce and Industry of the UK;
10. Ltd. "Infocom-S";
11. LLC "ASKOM" Certification Center;
12. JSC "Monocrystal".

Preferred bases of student internship are enterprises, institutions and organizations where much attention is paid to ensuring information security due to the specifics of their activities.
An independent selection by students of places of practice, including at the place of residence of nonresident students, is allowed. The places of practice proposed by students are necessarily consistent with the graduating department. At the end of the practice, the student receives a review of the internship from the head of the organization where he passed it. At the final stage of the internship, the student intern prepares a written report and passes the test.

**Production internship**

The Production internship of students of the specialization “Information Security” 10.03.01 is an integral part of the educational process and has the goal of consolidating and deepening the competencies achieved by students in the learning process. Production internship is carried out in accordance with the Federal State Educational Standards of Higher Education in terms of state requirements to the minimum content and level of training of graduates in the form of design-technological, operational and pre-degree internship.

Production internship is carried out, as a rule, individually in organizations of any organizational and legal forms, in their structural subdivisions corresponding to the profile of students' internship. The objectives of the internship are:

- consolidation, deepening and development of knowledge obtained in the process of theoretical training in the previous period of study;
- professional orientation of students, the formation of their full understanding of their profession;
- fulfillment of duties in the primary positions of information security services of enterprises, other structural units related to information security;
- consolidation of practical skills in the implementation of a complex of works to ensure the information security of the enterprise;
- consolidation of practical skills in the design of regulatory documents governing the activities in the field of information security;
- deepening of professional skills in the use of tools and programming systems in the development of information security management subsystems;
- deepening skills in conducting a preliminary feasibility analysis and justification of design solutions for ensuring information security.

The place of production internship are enterprises, institutions and organizations with which contracts have been concluded for production internship

1. LLC Stilsoft;
2. Administration of the Leninsky district of the city of Stavropol;
3. JSC "Concern Energomera";
4. PAO Stavropol Radio Plant "Signal";
5. LLP "NPO Engineering Systems";
6. CJSC "Sirius";
7. GKU IC "Regional IT Center";
8. LLC Stavropol Information Technologies;
9. Торгово-промышленная палата СК;
10. Ltd. "Infocom-S";
11. LLC "ASKOM" Certification Center;
12.JSC "Monocrystal".
Programs have been developed for each internship, which include:
- indication of the type of internship, method and form (forms) of its implementation;
- the list of planned learning outcomes during the internship, correlated with the planned results of the development of the educational program;
- indication of the place of internship in the structure of the educational program;
- an indication of the amount of internship in credits and its duration in weeks or in astronomical hours;
- content of internship;
- indication of reporting forms for internship;
- the fund of assessment tools for the intermediate certification of students in internship;
- list of textbooks and Internet resources necessary for the internship;
- a list of information technologies used in the internship, including a list of software and information reference systems (if necessary);
- description of the material and technical base necessary for the internship.

At the end of the internship, the student makes a report on the internship, which is taken in front of the commission from the staff of the department. According to the results of the report, an assessment is set (offset with assessment).
2. Other components developed by the decision of the graduating department.

2.1. Personnel support

The implementation of bachelor's educational programs of the specialization "Information Security" 10.03.01 is provided by the department of organization and technology of information protection, which is a specialized graduating department in the direction of training "Information Security".

The share of full-time academic staff (in the given to the integer values of the rates) is at least 50 percent of the total number of scientific and pedagogical workers of the organization.

The implementation of the bachelor program of the faculty is ensured by the presence of a license to carry out work related to the use of information constituting state secrets.

The share of academic staff (in terms of integer rates) with education and (or) a degree corresponding to the specialty of the discipline (module) taught in the total number of scientific and pedagogical workers implementing the undergraduate program is more than 70 percent.

The share of academic staff (in terms of integer rates) with a degree (including a degree awarded abroad and recognized in the Russian Federation) and (or) an academic title (including an academic title obtained abroad and recognized in the Russian Federation), in the total number of academic staff implementing the undergraduate program, is more than 50 percent.

The share of employees (in terms of integer rates) of the number of managers and employees of organizations which activities are related to the direction (specialty) of the undergraduate program (with at least 3 years experience in this professional field) in the total number of employees implementing the undergraduate program, is over 5 percent.

2.2. Educational-methodological and information support

EP bachelor degree of the specialization "Information Security" 10.03.01 is provided with educational and methodical documentation and materials for all training courses, disciplines of the educational program.

The library fund is staffed by printed publications at the rate of at least 50 copies of each of the editions of the main literature listed in the work programs of disciplines (modules), practices, and at least 25 copies of additional literature per 100 students.

The fund of additional literature in addition to educational includes official, reference and bibliographic and specialized periodicals, including legal regulations and regulatory guidance documents in the field of information security in the calculation of one or two copies for every 100 students.

The organization is provided with the necessary set of licensed software and certified software and hardware information security tools, the composition of which is determined in the work programs of the disciplines (modules).
следующее:

1. Card index of the FSAEI of HE «NCFU».

2. Electronic library systems:
   – Automated information library system “Foliant” http://catalog.ncfu.ru/catalog/ncfu;
   – EBS "University Library Online". http://www.biblioclub.ru;
   – EBS "University Library EBS" IPRbooks ”.
   http://www.iprbookshop.ru;
   – EBS "University Library Biblio-online.ru" http://biblio-online.ru/;
   – Cisco Networking Academy Network Academy - https://www.netacad.com/ru/;
   – scientific electronic library eLIBRARY.RU provides access to bibliographic descriptions and annotations of more than 12 million scientific articles. The library is subscribed to 140 Russian scientific journals in full-text access. http://elibrary.ru/.

Electronic library systems provide individual access for each student from anywhere in the world where Internet access is available.

Electronic library systems (electronic library) and electronic information and educational environment provides simultaneous access to more than 25 percent of bachelors students.

Operational exchange of information with domestic and foreign universities and organizations is carried out in compliance with the requirements of the legislation of the Russian Federation on intellectual property and international treaties of the Russian Federation in the field of intellectual property. Students have access to modern professional databases, information reference and search engines.

Students with disabilities are provided with printed and (or) electronic educational resources in forms adapted to their health restrictions.

2.3. Material-technical support

The university has a material and technical base, including special-purpose devices, equipment and hardware and software, which provides all types of lecture, laboratory, practical and other classes provided for by the educational standard and curriculum, including for self-study and scientific research work of students, and corresponds to the current sanitary and fire regulations and standards.

Special premises are classrooms for lecture-type classes, seminars-type classes, course design (coursework), group and individual counseling, monitoring and intermediate certification, as well as rooms for independent work and storage rooms for preventive maintenance of educational equipment. Special premises are equipped with specialized furniture and technical training means that serve to present educational information to a large audience.
For lecture-type classes, demonstration equipment and visual means are offered, providing thematic illustrations corresponding to exemplary basic educational programs.

The composition of the logistics include laboratories in:

- physics, equipped with educational and laboratory stands on mechanics, electricity and magnetism, optics;
- electrical, electronics and circuitry, equipped with educational and laboratory benches and instrumentation to measure the frequency properties, forms and temporal characteristics of signals, means for measuring the parameters of electrical circuits, means of generating signals;
- technical means and systems in protected performance and information security technologies for information objects, as well as specially equipped classrooms and information security management classrooms;
- nets and information transmission systems equipped with workstations based on computing equipment, stands of packet-switched and circuit-switched information transmission networks, a structured cable system, racks with telecommunications equipment, a power supply and ventilation system, training software, an active network emulator (emulators) equipment, specialized software for setting up telecommunications equipment;
- technical information protection, equipped with specialized equipment to protect information from leakage through the acoustic channel, the channel of spurious electromagnetic radiation and pickups, technical means of monitoring the effectiveness of protecting information from leakage through the specified channels;
- program-hardware tools for information security, equipped with anti-virus software complexes, user authentication hardware, software-hardware information protection complexes, including cryptographic information security tools, access control and security control systems, fire alarm climate control;

Computer classes and specially equipped classrooms for computer science, technologies and programming methods are equipped with computer-based workplaces connected to a local computer network and the Internet, training network software, training software and access to the organization’s electronic information and educational environment.

Computer classes and laboratories are equipped with modern computing equipment at the rate of one workplace per two students during classes in these laboratories.

When using electronic publications and conducting self-training, students are given the opportunity to access up-to-date professional databases and information reference systems, the composition of which is determined in the work programs of the disciplines.

The university is provided with the necessary set of licensed software and certified software and hardware information protection tools.
2.4. Financial support

Financial support for the implementation of the bachelor program is carried out in an amount not lower than the basic standard costs for the provision of public services in the field of education for a given level of education established by the Ministry of Education and Science of the Russian Federation taking into account correction factors that take into account the specifics of educational programs for the provision of public services for the implementation of state accredited treatment education programs of higher education in the specialties and directions of training.

2.5. Characteristics of university environment providing the development of general cultural competencies of graduate students

Rules and regulations of North-Caucasus federal university and Conception of upbringing system determine a character building as result-oriented process of forming high civic, moral, psychological and physical characteristics, habits and actions for students according to social and pedagogical requirements made by society.

The main aim of character building realized by NCFU is to create conditions for self-realizations of graduate student’s person in harmony with oneself and society. It is the achievement of this harmony that is a strategic direction in the educational activity of the university.

The results and effectiveness of education in the University is determined by the fact that it ensures the assimilation and reproduction by students of cultural values and social experience, the readiness of young people for conscious activity and independent creative activity. The most important result of education is the willingness and ability of students, future professionals to self-education.

The relationship and interaction among themselves of all the structural elements of the University, the unity of socio-professional and general cultural development; target unity of scientific, educational, financial, economic, and other fields of activity of the University; close connection of the main directions of the educational process is provided by an integrated, systematic approach.

The choice of priority areas of educational work of the North Caucasus Federal University is associated with two complementary levels.

The first level involves the development of social competence among students, which refers to knowledge and skills in the field of interaction with people and social institutions, possession of professional communication techniques and behavior and can be considered as a measure of personal maturity.

The second level is associated with the formation of professional competence, which is defined as an integral characteristic of a business and personal qualities of a specialist, reflecting the level of knowledge, skills and experience sufficient to carry out a specific type of activity, as well as a moral position.

Intellectual education is connected with formation of scientific world outlook, deep theoretical knowledge, and professional person’s position for students. Scientific world outlook includes: deepening and widening of many-sided
knowledge forming scientific world view; impartation of main principles for scientific methodology, elements of logical culture for mind; giving for students skills of creative approach for searching of optimal actions in non-standard situations when solving theoretical and practical problems.

Spiritual and moral education supposes formation of moral norms, change of moral knowledge to moral persuasion, student’s upbringing for moral feelings (conscience, honor, duty and etc.) and moral qualities (honesty, principled stand, courage, consistency, etc.), high behavioral culture, feeling of collectivism, responsibility for decision of social problems.

Organization of moral-patriotic education aimed at formation and development of civil culture, feeling of love for Motherland; forming and development of respective attitude to historical way of its nation, sense of belonging to modern social processes in country, in own university; knowledge of national-governmental organization in country and peculiarities of social and national policy of government in modern conditions; overriding in consciousness and in behavior a demonstration of nationalistic prejudice; forming culture of international communication.

Aesthetic education is realized to form and develop aesthetic necessities, feelings, tastes that correspond to ideal of civilized society; development of interest and ability to aesthetic activities for students. Content of aesthetic education for student’s development: provide foundations of aesthetic theory, correct understanding of beautiful things, skills to see and understand beauty of life, labor, and aesthetics of future profession, relationship beauty between people and in culture of behavior.

Physical culture is directed to form and develop culture of physical self-improvement to establish health, make physical and strong-willed qualities necessary for successful professional activities for students. Foundations of its content are to provide scientific knowledge of physical culture theory; to form conscious necessity to make physical exercises, establish health, practical participation in sports clubs for students, competitions and sports events; ensuring maximum effect during the physical training of young people. The material and technical base for the physical development of students includes sports and gyms, stadiums, the necessary sports equipment.

Legal education is directed to form student’s legal culture, respective attitude to law, cultivation of stable skills of regulatory estimation for own and other people actions; the formation of young people of scientific legal awareness, ideas about the legal state, the impartation of young people with the basics of legal knowledge about the legal regulation of the most important spheres of society, about main rights and duties for citizenry, making position of unlawful activities non-admission for young people and readiness to active resistance to them.

Ecological education is connected with forming and developing of ecological conciseness, making of careful attitude to environment, skills of rational use of natural resources. The main elements of ecological educational content are to improve knowledge about interconnect system between society and nature, modern ecological problems, responsibility in the questions of environment
protection and rational environmental management; practical participation of students in water protection and natural restoration measures.

Educational activities for the professional development of students. The central element of vocational education is professional development - personal development in the process of vocational training and learning. Educational activities for the professional development of the personality of students include: the development of a professional orientation, competence, professionally important qualities, an orientation towards the individual trajectory of the development of the personality of the student; assistance and support in the development of educational skills; the formation of the ability for personal self-determination and the development of a new professional style of life activity; identifying oneself with a future profession and shaping readiness for it, developing skills for professional self-presentation.

Professional education is implemented in cooperation with the Association of Alumni and Friends of NCFU, which is a structural unit of the University. The Alumni Association holds job fairs to familiarize students with the labor market and the possibility of employment; students are informed.

Development of students’ self-government. The main aim of student’s union is to develop and deepen democratic traditions of university, to bring up civil responsibility for student; active, creative attitude to learning process, socially-useful activity, forming of leader’s qualities for future specialists. NCFU Student Council - the governing authority of the student government system, created as a permanent representative and coordinating authority of the NCFU students. The main tasks of the NCFU Student Learning Council are:

- representing the interests of NCFU students, including in solving educational, social and other issues;
- preservation and development of democratic traditions of students, patriotic attitude to the spirit and traditions of the NCFU;
- assistance to the authorities of the NCFU in solving educational and scientific problems, in organizing leisure and living activities of students, in promoting a healthy lifestyle;
- carrying out work aimed at raising the awareness of NCFU students and their demands on the level of their knowledge,
- informing students about the activities of NCFU;
- promotion of socially significant youth initiatives.

Students’ trade union committee makes protection works of social, economic, educational rights and interests for students. It realizes social control for maintenance of legislative and normative acts concerning rights and interests for students. Provides certain material assistance to students in difficult life situations.

In order to implement the state youth policy, the university administration and the student government of the University closely cooperate with the youth structures and public organizations of the city of Stavropol and the Stavropol Territory.
The orientation of the processes of education and training in the North Caucasus Federal University contributes to the maximum mastery of the students of material and cultural values, scientific and technical achievements, promotes self-determination, self-affirmation, self-realization of the students' personality.

Regular monitoring of the social status of students allows for timely support for students who find themselves in difficult situations.

University Administration actively supports student initiative projects.