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**REQUIREMENTS FOR FINAL QUALIFICATION
WORKS AND THE PROCEDURE FOR THEIR PERFORMANCE**

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

DEVELOPED BY:

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1. Introduction

The preparation and defense of the final qualification work (thesis) refers to the state final certification of students, which is aimed at assessing the quality of mastering the basic educational program and completing the formation of general professional and professional competencies of the graduate.

The requirements for graduate qualification works and the procedure for their implementation have been developed in order to establish the general procedure for the implementation and defense of graduate qualification works (thesis) by graduate students.

These guidelines have been developed on the basis of:

1. of the Federal State Educational Standard of Higher Education – Bachelor's degree in the field of training 11.03.02 Infocommunication Technologies and Communication Systems, APPROVED BY the Order of the Ministry of Education and Science of the Russian Federation of 19.09.2017 No 930.

2. of the educational program in the field of training 11.03.02, APPROVED BY the Educational and Methodological Council of the "NCFU", protocol No 2 dated December 05, 2025, and APPROVED BY the Chairman of the Academic Council of the Institute of Information Technologies and Telecommunications, protocol No1 dated January 22, 2026.

3. Order of the Ministry of Education and Science of the Russian Federation dated 05.04.2017 No 301 "On Approval of the Procedure for the Organization and Implementation of Educational Activities in Educational Programs of Higher Education - Bachelor's Degree Programs, Specialist Programs, Master's Degree Programs" (Registered in the Ministry of Justice of Russia on 14.07.2017 No 47415);

4. Order of the Ministry of Education and Science of the Russian Federation of 13.02.2014 No 112 "On Approval of the Procedure for Filling, Recording and Issuing Documents on Higher Education and Qualifications and Their Duplicates" (as amended by Orders of 16.05.2014 No 546 and of 12.05.2014 No 481).

5. Regulations on the Procedure for Completing Graduation Qualification Works in the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University", adopted by the Academic Council of NCFU on 30.01.2018, Protocol No "7".

6. The Procedure for Conducting the State Final Certification of Educational Programs of Higher Education - Bachelor's Programs, Specialist Programs, Master's Degree Programs in the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University" (as amended on 27.12.2018, Protocol of the Academic Council of NCFU No 7), Order of the Ministry of Education and Science of Russia dated 27.03.2020 No 490 "On Amendments to Certain Orders of the Ministry of Education and Science of the Russian Federation Regarding the State Final Certification of Educational Programs of Higher Education".

7. Regulations on the procedure for conducting the state final certification of educational programs of higher education - bachelor's programs, specialist programs and master's programs at NCFU (as amended on 05/25/2020).

8. Regulations for the organization of state final certification at the North Caucasus Federal University using the e-learning system, distance educational technologies, APPROVED BY the Academic Council of NCFU (Protocol No 11 of 05/25/2020).

9. of the Regulations for the Organization of State Final Certification at the North Caucasus Federal University with the Use of Distance Educational Technologies, APPROVED BY the Academic Council of NCFU (Protocol No 8 of 01/28/2021)

10. Other local regulations of NCFU.

The requirements for final qualification works and the procedure for their implementation are addressed to students who are starting the final phase of the educational process, and teachers participating in the procedure of the state final certification (including supervisors, reviewers responsible for the preparation of final qualification works, members of the State Examination Commission). The pro-

cedure for the state final certification in terms of the preparation, registration and defense of final qualification works is presented. It contains recommendations that will help students choose the topic of the final qualification work, properly prepare, execute and successfully defend it. Samples of forms and examples of documents related to the final certification are presented.

2. Goals and objectives of the final qualification work

2.1. A final qualification work is a qualification, comprehensive study carried out by a student (several students together), demonstrating the level of preparedness of a graduate for independent professional activity and is, as a rule, the final stage of students' training under an educational program of higher education.

2.2. The thesis has the following goals and objectives:

- systematization, consolidation, expansion of theoretical knowledge and practical skills in the direction of training or specialty and their use in solving professional problems;
- development of skills of independent scientific work and mastering the methodology of building experimental research;
- preparation of students for real professional activities;
- completion of the formation of the graduate's competencies established by the standard, and competencies additionally established by the University (if such competencies are established).

2.3. Final qualification works for bachelor's degree programs are carried out in the form of *a diploma work* or *a diploma project*.

2.4. The type of graduate qualification work, the requirements for it, the procedure for its implementation and the criteria for its evaluation are established by the educational program of higher education in accordance with the requirements of the standard in terms of the requirements for the state final certification and educational and methodological documentation developed by the departments on the basis of standards and EP HE in the direction of training or specialty. The content of the final qualification work must take into account the requirements of the standards and EP HE in the direction of training or specialty.

A thesis is an independent scientific and practical research in which it is necessary to show knowledge of special literature, the ability to independently analyze and generalize it. The purpose of the thesis is to systematize and deepen knowledge in the direction of training or specialty, their application in solving practical problems, the application of independent work skills, mastering the methodology of research, generalization and logical presentation of the material.

When writing a diploma work, materials obtained by the student in the course of pre-diploma practice are used, reflecting the activities of enterprises, organizations, etc.

Diploma project is a type of graduation qualification work, which should be based on factual materials collected by the student during industrial (pre-diploma) practice, the results of their office processing and laboratory research, as well as information obtained from information sources.

When writing a diploma project, materials obtained by the student in the course of industrial (pre-diploma) practice and reflecting the activities of enterprises, organizations, etc. should be used. The explanatory note to the diploma project should clearly and concisely reveal the creative idea of the project, contain research methods, accepted calculation methods and the calculations themselves, a description of the experiments carried out, their analysis and conclusions on them, technical and economic comparison of options and, if necessary, accompanied by illustrations, graphs, sketches, diagrams, schemes, etc. Each project should have an appropriate economic justification and a section devoted to the safety and environmental friendliness of the project.

2.5. It is recommended to use end-to-end design, in which the topic (or part of it) is consistently developed in term papers, and then in graduate qualification works with its gradual expansion and deepening.

2.6. When solving a major task, it is possible to perform a comprehensive final qualification work developed by a team of authors, in the performance of which each student performs his or her specific task in accordance with the general task. Such a final qualification work can be performed by

students of different areas of training or specialties. In this case, a unified state examination commission is created in these areas of training, including specialists in different areas.

2.7. It is recommended to complete a thesis on a real topic.

A final qualification work is considered to be completed on a real topic if at least one or more of the following conditions are met:

- there is an application of the enterprise (organization) for the completion of the thesis with an indication of the subject matter or a request of the enterprise (organization) for the full or partial transfer of the thesis materials for their implementation;

- there is an application for a patent or a positive decision on its issuance, a certificate for a rationalization proposal, the essence of which is reflected in the main part of the final qualification work;

- the solution of the final qualification work is a technical development of the patented idea;
- the materials of the final qualification work are used in contractual or state budget research work;

- there is confirmation of the approbation of the results and conclusions of the work in the form of reports at scientific conferences, publications in journals, collections of scientific articles or introduction into production.

2.8. Work on the final qualification work can be carried out by the student directly at the University, at the enterprise, in the organization, in scientific, design and other institutions.

2.9. The texts of graduate qualification works, with the exception of the texts of graduate qualification works containing information constituting a state secret, are placed in the automated information and library system of NCFU.

Access of persons to the texts of graduate qualification works should be provided in accordance with the Regulations for the placement of graduate qualification works in the electronic library system of the North Caucasus Federal University, taking into account the withdrawal by the decision of the copyright holder of production, technical, economic, organizational and other information, including the results of intellectual activity in the scientific and technical sphere, on the methods of carrying out professional activities, which have actual or potential commercial value due to their unknown to third parties.

2.10. Theses are checked for the amount of borrowing in the "Antiplagiat" system in accordance with the Regulations for the use of the "Antiplagiat" system in NCFU.

2.11. For all the information set forth in the final qualification work, the procedure for their use in the compilation of factual material and other information, the validity (reliability) of the conclusions and the protected provisions, the author of the graduate work is directly responsible for professional, moral and legal responsibility, in accordance with the legal acts in force in the Russian Federation, and local regulations of NCFU.

3. List of competencies, the level of formation of which must be checked during the defense of the final qualification work

In the course of completing and defending a thesis, a graduate must demonstrate the level of mastery of the following general professional and professional competencies:

Index	Content of competence
UK-(No)	Universal Competencies
UK-1	Is able to search, critically analyze and synthesize information, apply a systematic approach to solving problems.
UK-2	Is able to determine the range of tasks within the framework of the goal and choose the best ways to solve them, based on the current legal norms, available resources and restrictions.
UK-3	Is able to carry out social interaction and fulfill his role in a team.

Index	Content of competence
UK-4	Is able to carry out business communication in oral and written forms in the state language of the Russian Federation and foreign language(s).
UK-5	Is able to perceive the intercultural diversity of society in socio-historical, ethical and philosophical contexts.
UK-6	Is able to manage his time, build and implement a trajectory of self-development based on the principles of lifelong learning.
UK-7	Is able to maintain the proper level of physical fitness to ensure full social and professional activities
UK-8	Is able to create and maintain safe living conditions, including in the event of emergencies.
UK-9	Is able to make informed economic decisions in various areas of life
UK-10	Is able to form an intolerant attitude towards corrupt behavior
OPK-(No)	General professional competencies
OPK-1	Is able to use the provisions, laws and methods of natural sciences and mathematics to solve problems of engineering activities.
OPK-2	Is able to independently conduct experimental research and use the basic methods of processing and presenting the data obtained.
OPK-3	Is able to apply methods of searching, storing, processing, analyzing and presenting information from various sources and databases in the required format, while observing the basic requirements of information security.
OPK-4	Is able to understand the principles of modern information technologies and use them to solve the problems of professional activity.
OPK-5	Is able to develop algorithms and computer programs suitable for practical application.
PK-(No)	Professional competencies
	Project activities
PK-1	Is capable of developing switching subsystems and network platforms, data transmission networks, transport networks and radio access networks, satellite communication systems.
PK-2	Is able to apply modern theoretical and experimental research methods in order to create new promising means of infocommunications, use and implementation of research results
PK-3	Is able to carry out calculations on the design of networks, structures and infocommunication tools in accordance with the terms of reference using both standard methods, techniques and design automation tools, and independently created original programs
PK-4	Is able to prepare standard technical projects and primary control of compliance of developed projects and technical documentation for various information and communication facilities with national and international standards and technical regulations

Index	Content of competence
	Technological activities
PK-5	Is able to carry out installation, configuration, adjustment, testing of equipment, development of operating modes, control of design parameters of operation and testing of communication equipment, ensuring compliance of technical parameters of information and communication systems and / or their components with established operational and technical standards
PK-6	Is able to administer network subsystems of infocommunication systems and/or their components
PK-7	Is capable of administering remote access security tools (operating systems and specialized protocols)
PK-8	Is capable of performing routine maintenance on network devices and information and communication system software

4. Structure and volume of the final qualification work, including the volume of each of the sections of the final qualification work

4.1. The results of the final qualification work are compiled into a manuscript (explanatory note) and other documentation provided for by the task on the topic: drawings, diagrams, technological maps, network diagrams, etc. The basis of its content should be the results obtained with the significant personal participation of the author. The supervisor helps to prepare the manuscript, his comments, corrections, recommendations must be treated responsibly, but the decision to make corrections to the manuscript remains with the author of the thesis. He is personally responsible for all the information contained in the manuscript, for the reliability of the data provided, for the design of the manuscript and materials presented in the appendices.

The preparation of the manuscript of the thesis must be treated with a high degree of responsibility. This is important both for the proper presentation of the results obtained in the course of the qualification work, and for demonstrating the ability to prepare scientific and technical documentation. According to the provisions of educational standards, a graduate of a higher educational institution, in whatever direction he is studying, must be able to do it professionally. Therefore, when qualifying a student, the members of the State Examination Commission pay close attention to the quality of the manuscript of the thesis. In addition, the attestation commission will have at its disposal a review of the thesis, which, as a rule, includes a description of the quality of the manuscript.

The thesis should fully comply with the APPROVED BYd research topic, contain elements of novelty, be relevant, and have theoretical and practical significance.

4.2. The final qualification work can have the following structure: title page, task, calendar plan, content, introduction, main text, conclusion, list of references (list of sources used), appendices.

4.3. It is recommended to submit a thesis in the following volumes: for a thesis/diploma project in the areas of undergraduate training – at least 30 pages of printed text.

5. The content of the final qualification work, including the content of each of the sections included in the structure of the final qualification work

The content of the thesis must comply with the requirements of the standards and include:

- substantiation of the choice of the subject and statement of the research task, carried out on the basis of a literature review, including taking into account periodicals of scientific publications, and the results of patent searches;
- theoretical and (or) experimental parts, including methods and means of research;

- mathematical models, calculations, design and (or) technological parts (for areas of training or specialties in the field of engineering and technology);
- results obtained during the preparation of the thesis, having scientific novelty, theoretical, applied or scientific-methodological significance;
- issues of economic justification and environmental safety (mandatory sections for the diploma project);
- approbation of the results and conclusions obtained in the form of reports at scientific conferences or prepared publications in scientific journals and collections;
- conclusions and recommendations;
- list of references (list of sources used);
- annexes (if necessary).

The thesis should be carried out using modern methods and models, and, if necessary, with the use of specialized packages of computer programs, graphic material (tables, illustrations, etc.);

A properly prepared thesis manuscript is a neatly formatted document in which the main materials of the thesis are consistently, clearly and concisely presented in a strict scientific language. Namely, the purpose of the work and the tasks to be solved are formulated, an overview of scientific publications on the topic of the work is given, methods and stages of problem solving are described, the results obtained are presented and analyzed.

The thesis manuscript is built according to a plan that helps the reader (reviewer) to form an opinion on the positions listed below.

1) What area does the topic of the graduation work belong to? Why the research being carried out is important and relevant.

2) What is the purpose of the work, and what tasks must be solved to achieve it.

3) What methods are used to solve such problems? What methods and why exactly are they used in the course of the thesis to solve the tasks.

4) What actions (means) were performed when solving problems (presentation of research methods).

5) What has been done, what results have been obtained.

6) What conclusions follow from the analysis of the results obtained.

7) What are the prospects for the development of research in this area?

8) Is there information on the approbation and implementation of the results, publications (reports and articles) on the results of the work.

The title page contains the following details: the name of the founder of NCFU, the name of the university, institute (branch), department, the name of the thesis topic, the surname, name, patronymic of the author of the work with an indication of the course, group, form of study; academic degree, title, position, initials and surname of the supervisor, consultants (co-supervisors), reviewer, column "Date of defense", "Grade", place and year of defense (*Appendix D*).

The task for the thesis includes the initial data for the thesis, the task for studying the object and subject of the study and collecting material for the work, the task for each section of the thesis, indicating the deadline for its issuance and the deadline for completion (*Appendixes A, B*).

The calendar plan for the performance of qualification work is drawn up for the entire (up to the defense) period of preparation with an indication of the deadlines for the completion of individual stages (*Appendix C*).

The content includes the names of sections, subsections of the work with an indication of the page of the beginning of each part.

The introduction contains the substantiation of the problem, the relevance, purpose and objectives of the study, the definition of the methodological basis of the study, the structure and methods of the study, the determination of the theoretical and (or) practical significance of the work.

The main text should be presented, as a rule, by theoretical and empirical sections. There should be at least two of them. Each section sets out an independent issue of the topic under study.

The **conclusion** contains conclusions on the work as a whole, prospects for further study, and connection with practice.

The list of references (list of sources used) is drawn up in accordance with the requirements of GOST for the design of bibliography; it indicates all the sources of scientific and technical literature and documentation used by the student.

The **appendices** include tables, schemes, graphs, diagrams, questionnaires and other materials illustrating or confirming the main theoretical provisions and conclusions.

6. Registration of the final qualification work

6.1. Control over compliance with the requirements for the preparation of a thesis (compliance with the norms and requirements of current state, international, industry standards and other regulatory documents, formatting of the text, list of references, drawings, etc.) is carried out by the Compliance Controller.

6.2. The Compliance Controller has the right to return the thesis in cases of non-compliance with the requirements, negligent implementation, lack of necessary signatures, absence of documents referred to in the work, etc.; require explanations and additional materials from the student on issues that have arisen during the check; not sign the thesis in case of non-compliance with the requirements.

6.3. Final qualification works in engineering specialties and areas of training must be drawn up in accordance with the requirements of state standards (GOST):

- 1) GOST 2.105-95. General requirements for text documents.
- 2) GOST 2.106-96. Text documents.
- 3) GOST 2.104-68. Main inscriptions; Unified system of design documentation; Unified system of technological documentation; Unified system of program documentation.
- 3) GOST 7.32-2001. Report on research work. Structure and rules of execution.
- 4) GOST 7.1-2003. Bibliographic record. Bibliographic description.
- 5) GOST 7.82-2001. Bibliographic record. Bibliographic description of electronic resources.
- 6) GOST R 7.0.5-2008. Bibliographic reference. General requirements and rules for compilation.
- 7) GOST 7.80-2000. Bibliographic record. Title. General requirements and rules for compilation.

In addition, theses are issued in accordance with the Requirements for graduate qualification works and the procedure for their implementation, developed by graduating departments in accordance with the above GOSTs and regulatory and technical documentation in the direction.

The text of the thesis is made using a computer on one side of a sheet of white paper, A4 format, font - Times New Roman size 14, font color - black, line spacing - 1.5.

The page number is put in the lower right corner of the sheet. Pages of text material should be numbered in Arabic numerals, observing continuous numbering throughout the document. Title pages of a text document are included in the general page numbering. The page number is not put on title pages.

The distance from the edge of the paper to the borders of the text should be left in compliance with the following margin sizes:

- left – 30 mm;
- upper and lower – 20 mm;
- right – 10 mm.

The size of the paragraph indent should be the same throughout the text of the work and equal to 12.5 mm.

The thesis has the following structure:

- title pages;
- content;
- Introduction;
- the main part;
- conclusion;
- list of references;
- appendices.

These structural elements start on a new page.

Headings of structural elements "**CONTENTS**", "**INTRODUCTION**", "**CONCLUSION**", "**REFERENCES**" are placed in the center, are not underlined or numbered, highlighted in bold and separated from the text by line spacing - 2.

The text of the main part of the document is divided into sections.

Sections start on a new page and must have serial numbers within the entire thesis, indicated by Arabic numerals (for example, 1, 2, 3). A period is not placed at the end of the section number.

If necessary, the text of sections is divided into subsections, paragraphs and subparagraphs. When dividing the text into paragraphs, it is necessary that each paragraph contains complete information.

Subsections should be numbered within each section. Subsection numbers consist of the number of the section and subsection separated by a period (e.g. 1.1, 1.2, 1.3). There is no period at the end of the subsection number. The numbering of paragraphs should consist of the number of the section, subsection and paragraph separated by a period (e.g. 1.1.1, 1.1.2, 1.1.3).

The heading of sections, subsections and paragraphs should be printed with a paragraph indent, with a capital letter, without a dot at the end, without underlining. Headings of sections, subsections are highlighted in bold.

The distance between the heading of a section, subsection, paragraph and the text is equal to the line spacing - 2. The distance between the headings of a section and a subsection, as well as a subsection and a paragraph is equal to the line spacing - 1.5.

The content of the thesis includes an introduction, the names of all sections, subsections, paragraphs, a conclusion, a list of references and the names of the appendices with an indication of the page numbers from which these elements of the work begin (Fig. 1).

The first sheet of the thesis content should have a frame with the main inscription in accordance with GOST 2.104-2006 "ESKD. Main inscriptions", in accordance with Figure 2. The second and subsequent sheets of the thesis content should have a frame with the main inscription in accordance with Fig. 3.

When filling in the main inscription, the following document designation is used

XX-NCFU-11.03.02-AAA-AAAAA-18,

where *XX* – determines the form of work (*DR* – diploma work, *DP* – diploma project);

11.03.02 – field of study;

AA-AAAAAA – code and number of the student's record book;

18 – the last two digits of the year of completion of the thesis.

Formulas in progress for older versions of the Microsoft Word text editor are executed in the Microsoft Equation 3.0 formula editor, which must be run first (the Insert tab → the Text panel → the Object item).

Before typing a formula, you need to configure the editor or check the existing settings. To do this, you need to enter the formula editor. Open the "Size" option, select the "Determinant" line.

In the list that opens, set:

regular – 14;

major index – 9;

a small index – 7;

large symbol – 18;

small symbol – 12.

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					<i>ДР-СКФУ-11.03.02-130834-18</i>			
Изм.	Лист	№ документа	Подп.	Дата	<i>Разработка системы мониторинга подвижных и стационарных объектов на основе технологии APRS</i>	Лит.	Лист	Листов
Разраб.		Иванов А. А.					4	
Проверил		Петров С. В.						
Н. контр.		Петров С. В.				СКФУ. Институт ИТТ. Кафедра инфокоммуникаций. Группа ИТС-Б-о-141		
Утвердил		Линев Г. И.						

Figure 1. Sample content design

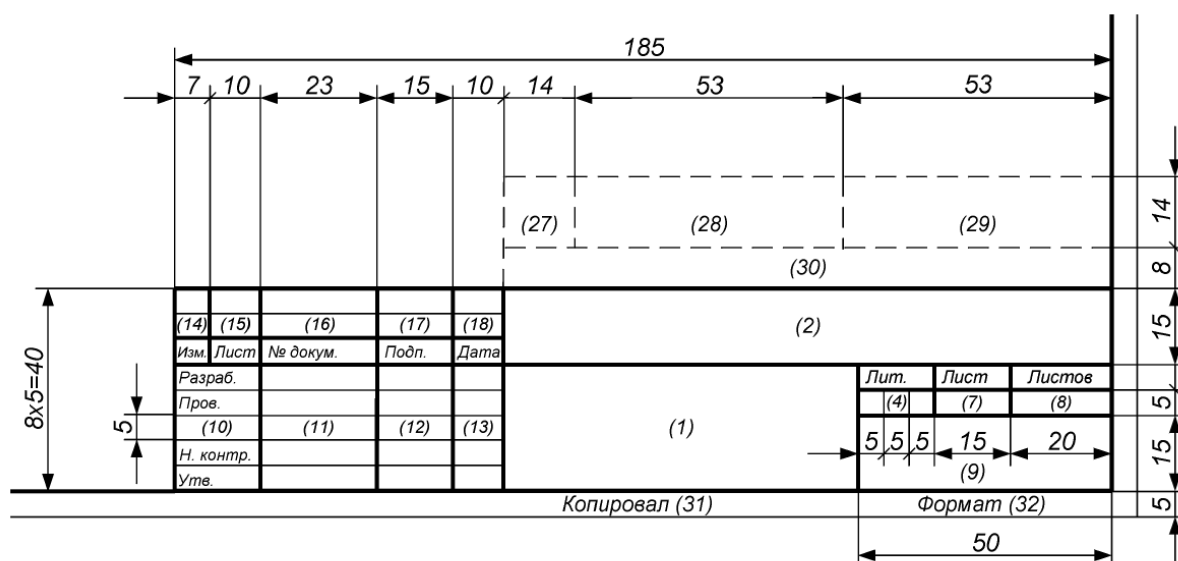


Figure 2. Main inscription (first sheet)

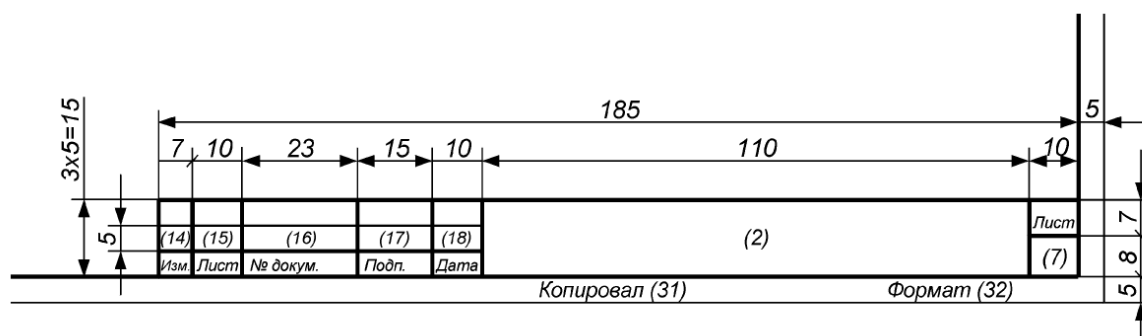


Figure 3. Main inscription (subsequent sheets)

If you are using versions of Word that were installed after January 2018, you must use the MathType formula editor. To adjust the size of characters in formulas, use the Size item on the main menu. In this window, you can select the size of the characters (see Figure 4). You can use the Define option to manually set font settings for each character size, and you can enter sizes in points, inches, centimeters, or percentages of the base size, which is indicated as Full in MathType.

Formulas should be separated from the text in a separate line and centered.

If necessary, the formulas are numbered. Continuous numbering (for example, (34)) or numbering within a section (for example, (9.3)) is possible, in which case the formula number consists of the section number and the sequence number within the section, separated by a period. The formula number is aligned to the right (Fig. 5).

The formulas in the annexes shall be numbered separately within each annex, with the designation of the annex added in front, for example: (B.2).

table is centered, without paragraph indentation, and should be placed immediately after the text in which it is first mentioned or on the next page.

A table with a large number of rows is divided into parts and placed on different pages. The full name of the table is given only above its first part. Above the other parts of the table, the phrase "Continuation of the table" is placed (aligned to the right) with an indication of its number – for example, Continuation of Table 12.2 (Fig. 7).

Продолжение таблицы 12.2													
№ вар.	Задача							№ вар.	Задача				
11		S1	S2	S3	S5	S7	S8	12		S1	S2	S5	S7
	S1	0	1	1	1	1	1		S1	0	1	1	1
	S2	1	0	1	0	1	1		S2	1	0	1	1
	S3	1	1	0	1	1	0		S5	1	1	0	1
	S5	1	1	0	0	1	0		S7	1	1	1	0
	S7	1	1	1	1	0	1		S8	0	0	0	0
	S8	0	0	0	0	0	0						

Figure 7. Example of the continuation of the table

Column and row headings of the table should be written with a capital letter in the singular, and column subheadings should be written with a lowercase letter if they make up one sentence with a heading, or with a capital letter if they have an independent meaning. No periods should be placed at the end of headings and subheadings of columns and rows.

Figures in the work should be placed immediately after the text in which they are mentioned for the first time, or on the next page. Each figure should have its own number and title. Continuous numbering is possible (for example, (Figure 34)) or numbering within a section (for example, (Figure 9.3)), in which case the figure number consists of the section number and the serial number within the section, separated by a period.

The name of the figure should be placed under the figure, applying center alignment, without paragraph indentation (Fig. 8). Do not put a dot at the end of the figure caption. The word "Figure" should be written in full. The figure should be centered, without indentation.

If there are appendices in the work, then the figures of each appendix are marked with a separate numbering in Arabic numerals with the addition of the designation of the appendix in front (for example: Figure A.3.).

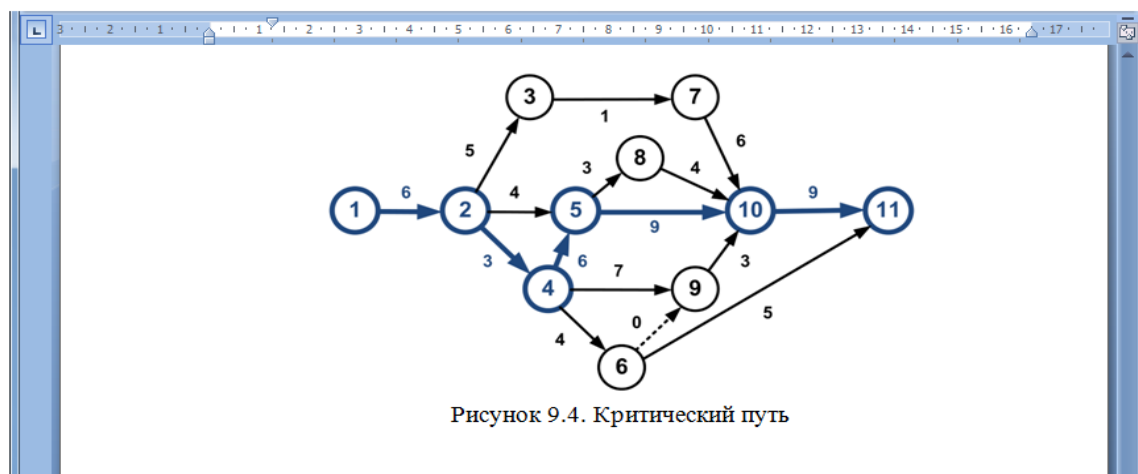


Figure 8. Sample design of the drawing

Lists in the work can be divided into marked and numbered.

Bulleted lists

If the enumeration fragments, i.e. the list items, are small, they begin with a small letter and end with a semicolon. A dash "-" is used as a marker (Fig. 9).

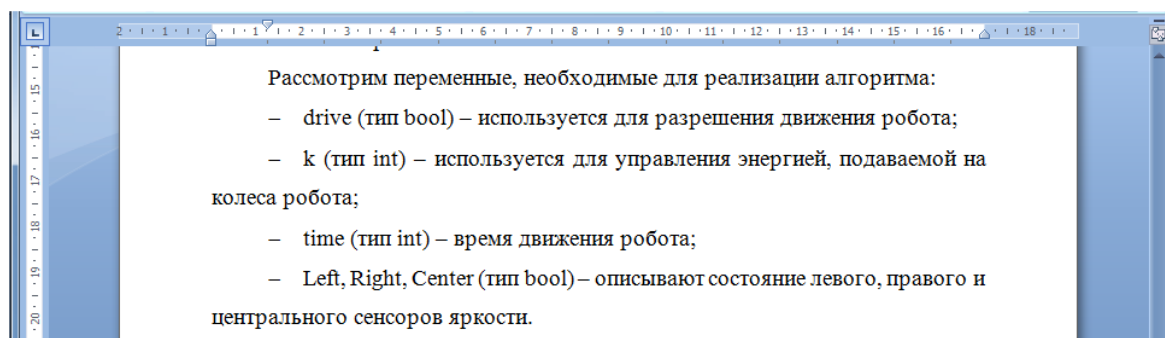


Figure 9. Example of a bulleted list

Numbered lists

For numbered lists containing large text fragments, it is customary to use Arabic numerals with a period after them. After this period, the text should begin with a capital letter and end with a period (Fig. 10).

In the case when the enumeration fragments (list elements) are small, they can be numbered in order, using Arabic numerals with a parenthesis after them. In this case, the text should begin with a small letter and separate the list elements with a semicolon sign (Fig. 11).

The list of references should be drawn up in accordance with GOST 7.1–2003 "Bibliographic record. Bibliographic description". The examples given in *Appendix D*.

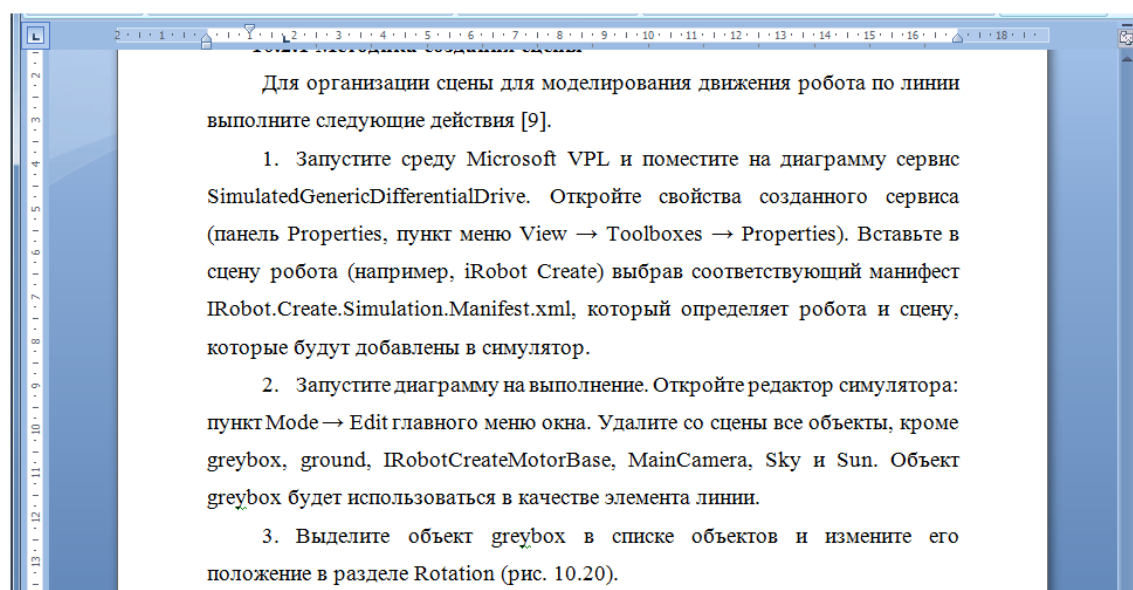


Figure 10. Example of a numbered list (1 version)

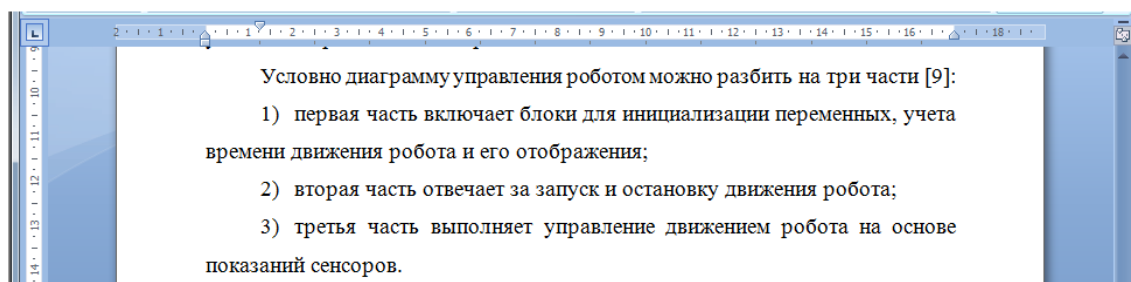


Figure 11. Example of a numbered list (2nd version)

The following separating signs are used to distinguish the elements of the description of a literary source:

. – (dot and dash) – is placed before each area of the description, except for the first one (author and title);

: (colon) – put before the name of the publishing house;

/ (slash) – precedes information about responsibility (authors, compilers, editors, translators);

(two slashes) – is placed before the information about the document from which the listed work (article, chapter, section) is taken.

A reference to the source in the text of the work is given in square brackets with a number from the list of references, for example: "... in the textbook [12] the concept of ..." is given. It is unacceptable to borrow the text from literary sources without reference to the author of the quotation.

The graphic part of the thesis manuscript (drawings, diagrams, etc.) is made in compliance with the relevant state standards.

Each appendix should start with a new page with the word "APPENDIX" and its designation at the top in the middle of the page. The appendix should have a title, which is written symmetrically relative to the text with a capital letter in a separate line (Fig. 12).

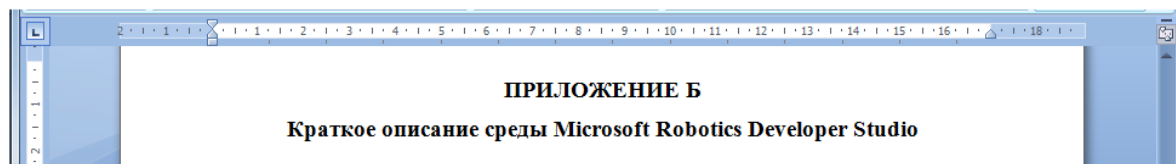


Figure 12. Sample design of the appendix

Appendices are denoted by capital letters of the Russian alphabet, starting with A, with the exception of the letters Ё, З, Й, О, Ч, Ь, Ъ, Ь. The word "Appendix" is followed by a letter denoting its sequence (for example: APPENDIX B). If there is only one appendix in the document, it is designated "APPENDIX A".

The text of each annex, if necessary, can be divided into sections, subsections, etc., which are numbered within each annex. The number is preceded by the designation of this annex (for example, A.1.3).

The numbering of the pages of the annexes and the main text should be sequential.

7. The procedure for completing the final qualification work and the procedure for preparing the final qualification work for defense

7.1. The organization and control of the thesis is carried out by the graduating department, the directorate of the institute.

7.2. The graduating department provides students with the Requirements for graduate qualification works and the procedure for their implementation, which contain:

- requirements for the structure, content, volume and design of graduate qualification works in relation to the specialty (direction), as well as the procedure for their implementation;
- criteria for evaluating graduate qualification works.

The list of topics for graduation qualification works offered to students (hereinafter referred to as the list of topics) is determined by the graduating departments, annually considered at meetings of the graduating departments, APPROVED BY the Academic Council of the Institute and brought to the attention of students no later than six months before the start date of the state final certification (*Appendix I*).

The topics of graduate qualification works should be relevant, correspond to the profile of the field of training (specialty), take into account the industry specifics and the direction of NCFU activities, the current state and prospects for the development of science.

The student is given the right to choose the topic of the final qualification work. Upon the written application of the student (several students performing the final qualification work jointly), the graduating department may, in accordance with the established procedure, provide the student (students) with the opportunity to prepare and defend the final qualification work on the topic proposed by the student (students), if the expediency of its development for practical application in the relevant field of professional activity or at a specific object of professional activity is justified.

From the materials of the educational program in the field of study 11.03.02 Infocommunication Technologies and Communication Systems, it is possible to understand what types of professional activities are provided for graduates. This will allow you to choose the most suitable topic for the thesis, taking into account your own preferences, abilities, inclinations - the desire and ability to engage in more theoretical, or experimental, or project, or analytical activities. In many areas, such a choice is provided: the work can be given a research, design, production and technological, organizational and managerial, scientific and educational character. It is important to clearly determine the direction of the qualification work at an early stage in order to properly focus efforts, in a certain context to build the presentation of the material in the manuscript and in the report on the defense.

The choice of the topic of the graduation work involves cooperation with a specific supervisor, and a certain place of work. This is a very important factor in the training system, which significantly affects the final stage of the formation of a specialist. Often the future place of work, the forms of continuing education (for masters - in graduate school) depend on this choice.

Having decided on the topic of the graduation work, the student begins to work on it in practice (educational, industrial, including pre-graduation), provided for by the schedule of classes. The supervisor formulates a task for the internship, which should reflect the topic of the final qualification work, and together with the student draws up a calendar plan of work. The assignment for the practice that precedes the defense of the thesis is, but in essence, a task for the completion of the thesis.

The goals of pre-graduation practice - the first stage of preparing a graduation work - are as follows:

- familiarization with the state of science and technology in the areas related to the topic under development, and with the range of tasks solved by the scientific team;
- identification of problems to be solved;
- study of research methods, data processing;
- acquisition of skills for conducting independent scientific work and analyzing the results obtained;
- solving problems on the subject of the thesis.

By the end of the practice, the structure of the thesis manuscript should be prepared in general terms.

Attestation based on the results of the internship is carried out on the basis of a written report of the student and the feedback of the head of the internship (supervisor). The title page of the report should contain the formulation of the topic of the internship and an indication of the place of its passage. The report contains brief information about the subject of the work and the mastered research methods (technological processes, computer tools and programs), describes the research and development carried out in the course of the internship, provides and briefly analyzes the main results, and formulates conclusions based on the results of the internship. Graduates studying in master's programs must include in the internship report a section containing the formulation in the final form of the topic

of the graduation work, as well as a judgment on its relevance, novelty, scientific and practical significance. Based on the results of the certification, a grade is given and recommendations are formulated for the approval of the topic of the final qualification work.

Immediately after the attestation based on the results of the practice preceding the final stage of the thesis preparation, the supervisor formulates the topic of the thesis in the final version and draws up a task for the completion of the final qualification work. Samples of the thesis assignment are given in *Appendix A and B*. The thesis assignment includes initial data for the thesis, a task for studying the object and subject of research and collecting material for the work, a task for each section of the thesis, indicating the deadline for its issuance and the deadline for completion.

The completed assignment for the graduation work, signed by the supervisor and the student (with the wording "I accepted the assignment for execution"), is APPROVED BY the head of the graduating department. On the basis of the APPROVED BY task, the student and the supervisor draw up a calendar plan for the completion of the qualification work for the entire (up to the defense) period of preparation with an indication of the deadlines for the completion of individual stages (*Appendix B*).

After the approval of the task for the thesis, the final stage of the graduation work begins, an important section of which is the preparation of the manuscript of the final qualification work.

7.3. The thesis assigned to the student is carried out in accordance with the task of studying the object and subject of research and collecting material for work. The task for the thesis with an indication of the deadline for its completion is APPROVED BY the head of the graduating department.

7.4. The head of the thesis assists the student in developing the content of the topic for the entire period of the thesis, drawing up a calendar plan (*Appendix B*), recommends the necessary literature, reference materials and other sources on the topic, conducts systematic consultations, checks the performance of the work in parts and as a whole, draws up tasks for pre-diploma practice.

7.5. Consultants (co-supervisors) check the relevant part of the completed thesis and put their signature on it.

7.6. At the meetings of the graduating department, at least twice during the period of work on the final qualification work, reports of the thesis supervisors or students on the degree of readiness of the work are heard.

7.7. After passing the pre-diploma practice, a public preliminary defense of the work is carried out, the results of which are recorded in the minutes of the meeting of the graduating department.

7.8. The completed thesis, signed by the student and the consultant, the supervisor is submitted to the supervisor. After the examination of the thesis (including the amount of borrowing in accordance with the Regulations for the use of the "Antiplagiat" system in NCFU), the supervisor signs it and, together with his written review of the student's work during the preparation of the graduate qualification work (*Appendix D*) and the feedback of the co-supervisor, submits the work to the head of the department.

7.9. On the basis of these materials, the head of the department after the meeting of the department makes a mark on the thesis on the admission of the student to the defense. If the student is not allowed to defend the work, this issue is considered at a meeting of the department with the participation of the head. The minutes of the meeting of the department on non-admission are submitted to the directorate of the institute (branch) and, together with the memo of the director of the institute, are sent for signature to the vice-rector for academic affairs.

7.10. The decision to review the final qualification works for Bachelor's programs is made at the meeting of the graduating department. The thesis admitted by the graduating department to the defense, no later than 10 calendar days before the defense in the state examination commission, is sent to one or more reviewers (*Appendix E*). If the final qualification work is interdisciplinary, it is sent to several reviewers. The reviewer analyzes the final qualification work and submits a written review of the specified work (hereinafter referred to as the review). In the review (*Appendix G*), it is necessary to note the relevance of the selected topic, the degree of its validity, the expediency of setting the research objectives, the completeness of their implementation, the argumentation of the conclusions,

the novelty, theoretical and practical significance of the work, and give a general assessment of the work.

7.11. The graduating department must familiarize the student with the review and review (reviews) no later than 5 calendar days before the day of the defense of the final qualification work.

7.12. The final qualification work, review and review (reviews) are submitted to the state examination commission no later than 2 calendar days before the day of defense of the final qualification work.

7.13. The procedure for conducting the state final certification of graduates is determined by the Regulation on the Procedure for Conducting State Final Certification for Educational Programs of Higher Education – Bachelor's Programs, Specialist Programs and Master's Degree Programs at the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University".

A student who has successfully completed the full development of the Educational Program (EP) developed by NCFU in accordance with the requirements of the educational standard, and who has successfully passed all the state exams established by the Educational Program (except for special cases) and completed the thesis on time and in full is allowed to defend the final qualification work.

The defense of the final qualification work is carried out at an open meeting of the state examination commission. The public defense of the final qualification work is a mandatory component of the state final certification (SFC) of a student.

At the meeting of the examination commission, the surname, name, patronymic of the graduate, the topic of the final qualification work, the scientific supervisor (consultant) and the reviewer are announced. The secretary of the commission records this information in the protocol.

The student is given no more than 15 minutes to report the main provisions of the final qualification work. During the report, the student must highlight: the relevance of the chosen topic, the object and subject of research, the purpose and main objectives, scientific development and novelty, theoretical and practical results of the research.

The requirement for the thesis defense procedure is the use of information technologies, drawings and posters, demonstration of working samples, models and software modules developed, manufactured and debugged during the completion of the final qualification work.

After the student's speech, the members of the commission ask questions. After the student answers the questions, the supervisor's review and the review of the work are read out (the supervisor and the reviewer can speak during the student's defense). The student is given the right to respond to the reviewer's comments. The secretary of the commission writes down the questions and the general characteristics of the student's answer to the reviewer's questions and comments in the minutes.

The duration of the defense, as a rule, is 30 minutes.

At the end of the defense of students' graduation qualification works, a meeting is announced, which is attended only by members of the commission. At the meeting, the final qualification work and the defense of each student are discussed. Based on the results of the discussion, grades are put in the minutes and statement.

When evaluating the final qualification work, the level of competence formation (in accordance with the educational standard and educational program), as well as the feedback of the supervisor and the assessment of the work by the reviewer and other requirements imposed by the fund of assessment tools for the state final certification, developed by the graduating department for each educational program, are taken into account.

Following the results of the meeting of the examination committee, the results of the defense of graduate qualification works are announced to students. The commission has the right to note the best graduates and give recommendations to continue work on the topic of the final qualification work in the master's program.

8. List of recommended literature, information sources

- 1) GOST 2.105-95. General requirements for text documents.
- 2) GOST 2.106-96. Text documents.

- 3) GOST 2.104-68. Main inscriptions; Unified system of design documentation; Unified system of technological documentation; Unified system of program documentation.
- 4) GOST 7.32-2001. Report on research work. Structure and rules of execution.
- 5) GOST 7.1-2003. Bibliographic record. Bibliographic description.
- 6) GOST 7.82-2001. Bibliographic record. Bibliographic description of electronic resources.
- 7) GOST R 7.0.5-2008. Bibliographic reference. General requirements and rules for compilation.
- 8) GOST 7.80-2000. Bibliographic record. Title. General requirements and rules for compilation.
- 9) of the Federal State Educational Standard of Higher Education – Bachelor's degree in the field of training 11.03.02 Infocommunication Technologies and Communication Systems, APPROVED BY the Order of the Ministry of Education and Science of the Russian Federation of 19.09.2017 No 930.
- 10) of the educational program in the field of training 11.04.02 Infocommunication Technologies and Communication Systems, APPROVED BY the Educational and Methodological Council of the "NCFU" protocol No 8 of 04/26/2019, APPROVED BY the Chairman of the Academic Council of the Institute of Information Technologies and Telecommunications on 04/30/2019.
- 11) Order of the Ministry of Education and Science of the Russian Federation of 05.04.2017 No 301 "On Approval of the Procedure for the Organization and Implementation of Educational Activities in Educational Programs of Higher Education - Bachelor's Programs, Specialist Programs, Master's Programs".
- 12) Order of the Ministry of Education and Science of the Russian Federation of 13.02.2014 No 112 "On Approval of the Procedure for Filling, Accounting and Registration and Issuance of Documents on Higher Education and Qualifications and Their Duplicates" (as amended by Orders of 16.05.2014 No 546 and of 12.05.2014 No 481).
- 13) Regulations on the Procedure for Conducting State Final Certification of Educational Programs of Higher Education – Bachelor's Programs, Specialist Programs and Master's Degree Programs at the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University", adopted by the Academic Council of NCFU on 24.11.2016, Protocol No 5.
- 14) Regulations on the Procedure for Completing Graduate Qualification Works in the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University", adopted by the Academic Council of NCFU on 30.01.2018, Protocol No 7.
- 15) Regulations on Educational and Methodological Support of Educational Programs of Higher Education at the North Caucasus Federal University, APPROVED BY the Order of the Rector of NCFU dated 08.09.2014 No 1376-o.
- 16) Graduation qualification work: educational and methodological manual. P.P. Oleynik; V.D. Kopylov; M.N. Ershov; N.D. Cherednichenko Electronic resource: Moscow State University of Civil Engineering, IPR Media, EBS ASV; Moscow, 2016. - 41 p. - The book is in the basic version of EBS IPRbooks. - ISBN 978-5-7264-1419-5, unlimited copies.

9. Description of indicators and criteria for assessing competencies, as well as assessment scales

9.1 Description of indicators

When assessing the thesis, the level of competence formation (in accordance with the educational standard and educational program) is taken into account according to the following proposed *indicators*:

- the level of theoretical and research study of the problem;
- the quality of the analysis of the problem;
- completeness and problematic nature of the proposals made on the problem under consideration;
- the level of approbation of work and publications;
- the volume of experimental research and the degree of introduction into production;

- independence of development;
- the degree of proficiency in modern software products and computer technologies;
- skills of public discussion, protection of one's own scientific ideas, proposals and recommendations;
- the quality of the presentation of the results of the work;
- the general level of culture of communication with the audience;
- readiness for practical activities in a market economy, changes, if necessary, in the direction of professional activity within the subject area of knowledge and practical skills;
- feedback from the supervisor and assessment of the work by the reviewer;
- other requirements imposed by the fund of assessment tools for the final certification.

competence, indicator	Levels of competence and indicators			
	The minimum level has not been reached (unsatisfactory) 2 points	Minimum level (satisfactory) 3 points	Intermediate level (good) 4 points	High level (excellent) 5 points
Competency: UK-1				
Learning outcomes: <i>Indicator:</i> ID-1 UK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of identifying a problem situation, its multivariate analysis and diagnostics based on a systematic approach.	Quite confidently identifies a problem situation, carries out its multifactorial analysis and diagnostics based on a systematic approach. Makes minor mistakes.	Accurately and reasonably identifies a problem situation, carries out its multifactorial analysis and diagnosis based on a systematic approach.
Learning outcomes: <i>Indicator:</i> ID-2 UK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of searching, selecting and systematizing information to determine alternative options for strategic solutions in a problem situation.	Basically, correctly conducts the search, selection and systematization of information to determine alternative options for strategic solutions in a problem situation. Makes minor mistakes.	Competently searches, selects and systematizes information to determine alternative options for strategic solutions in a problem situation.
Learning outcomes: <i>Indicator:</i> ID-3 UK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of identifying and assessing the risks of possible solutions to a problem situation, choosing the best option for its solution.	In general, correctly identifies and assesses the risks of possible solutions to a problem situation, chooses the best option for its solution. Makes minor mistakes.	Competently identifies and assesses the risks of possible solutions to a problem situation, chooses the best option for its solution.
Competency: UK-2				
Learning outcomes: <i>Indicator:</i> ID-1 UK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of formulating the goal of the project	In general, correctly formulates the goal of the project, determines a set of interrelated tasks	Correctly formulates the goal of the project, determines a set

		ject, determining a set of interrelated tasks that ensure its achievement and determining the expected results of solving problems.	that ensure its achievement and determines the expected results of solving problems. Makes minor mistakes.	of interrelated tasks that ensure its achievement and determines the expected results of solving problems.
Learning outcomes: <i>Indicator:</i> ID-2 UK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of developing an action plan to solve the tasks of the project, choosing a way to solve them, based on the current legal norms and available resources and restrictions.	In general , he correctly develops an action plan to solve the problems of the project, choosing the best way to solve them, based on the current legal norms and available resources and restrictions. Makes minor mistakes.	Accurately and reasonably develops an action plan to solve the tasks of the project, choosing the best way to solve them, based on the current legal norms and available resources and constraints.
Learning outcomes: <i>Indicator:</i> ID-3 UK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the process of ensuring the implementation of the project in accordance with the established goals, deadlines and costs, based on current legal regulations, available resources and constraints, including the use of digital tools.	Generally ensures that the project is carried out correctly in accordance with the set goals, deadlines and costs, based on current legal regulations, available resources and constraints, including the use of digital tools. Makes minor mistakes.	Competently ensures the implementation of the project in accordance with the established goals, deadlines and costs, based on current legal regulations, available resources and restrictions, including the use of digital tools.
Competence: UK-3				
Learning outcomes: <i>Indicator:</i> ID-1 UK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when participating in interpersonal and group interactions, partly using an inclusive approach, effective communication, team-building and teamwork methods when working together within the framework of the task.	Quite confidently participates in interpersonal and group interaction, using an inclusive approach, effective communication, methods of team building and team interaction when working together within the framework of the task. Makes minor mistakes.	Fully participates in interpersonal and group interactions, effectively using an inclusive approach, effective communication, team-building and teamwork methods when working together within the framework of the task.

Learning outcomes: <i>Indicator:</i> ID-2 UK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when ensuring the work of the team in order to obtain optimal results of joint work, taking into account the individual capabilities of its members, the use of methodology for achieving success, methods, information technologies and foresight technologies.	In general , he correctly ensures the work of the team in order to obtain optimal results of joint work, taking into account the individual capabilities of its members, the use of methodology for achieving success, methods, information technologies and foresight technologies. Makes minor mistakes.	Ensures the work of the team with great efficiency in order to obtain optimal results of joint work, taking into account the individual capabilities of its members, the use of methodology for achieving success, methods, information technologies and foresight technologies.
Learning outcomes: <i>Indicator:</i> ID-3 UK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in ensuring that tasks are completed based on monitoring teamwork and responding to significant deviations.	Generally correctly ensures the implementation of assigned tasks based on monitoring teamwork and responding to significant deviations. Makes minor mistakes.	With great efficiency, it ensures the fulfillment of tasks based on the monitoring of teamwork and timely response to significant deviations.
Competency: UK-4				
Learning outcomes: <i>Indicator:</i> ID-1 UK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when choosing the style of business communication in the state and foreign languages, verbal and non-verbal means of interaction with partners in oral and written forms.	In general , he correctly chooses an acceptable style of business communication in the state and foreign languages, verbal and non-verbal means of interaction with partners in oral and written forms. Makes minor mistakes.	Independently and competently chooses an acceptable style of business communication in the state and foreign languages, verbal and non-verbal means of interaction with partners in oral and written forms.
Learning outcomes: <i>Indicator:</i> ID-2 UK-4	Unable to complete tasks related to this competency achievement indicator.	Insufficiently applies in practice communication technologies, methods and methods of business communication for academic and professional interaction.	Quite confidently uses information and communication technologies to increase the efficiency of professional interaction, search for the necessary information.	He fully uses information and communication technologies to increase the efficiency of professional interaction, high-quality search for the necessary information in the process

			formation in the process of solving standard communicative tasks in the state and foreign languages. Makes minor mistakes.	of solving standard communicative tasks in the state and foreign languages.
Learning outcomes: <i>Indicator:</i> ID-3 UK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when assessing the effectiveness of the communication technologies used in professional interaction in the state and foreign languages, as well as when choosing the optimal ones.	Quite confidently evaluates the effectiveness of the applied communicative technologies in professional interaction in the state and foreign languages, basically correctly chooses the optimal ones. Makes minor mistakes.	Competently evaluates the effectiveness of the applied communication technologies in professional interaction in the state and foreign languages, independently makes a choice of the optimal ones.
Competency: UK-5				
Learning outcomes: <i>Indicator:</i> ID-1 UK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when identifying, comparing and analyzing information about the cultural characteristics and traditions of various social groups, to choose a strategy for interacting with their carriers.	Quite confidently identifies, compares and analyzes information about the cultural characteristics and traditions of various social groups, to choose a strategy for interaction with their carriers. Makes minor mistakes.	Independently and competently identifies, compares and analyzes information about the cultural characteristics and traditions of various social groups, in order to choose the optimal strategy for interaction with their carriers.
Learning outcomes: <i>Indicator:</i> ID-2 UK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when demonstrating respect for the historical heritage and socio-cultural traditions of various social groups, based on knowledge of the stages of historical development of Russia (including the main events, main historical figures) in the context of world history and a number of cultural traditions of the world (depending on	In general, he demonstrates a respectful attitude to the historical heritage and socio-cultural traditions of various social groups, based on knowledge of individual stages of the historical development of Russia (including the main events, the main historical figures) in the context of world history and a number of cultural	Fully and independently demonstrates respect for the historical heritage and socio-cultural traditions of various social groups, based on knowledge of the stages of historical development of Russia (including the main events, the main historical figures) in the context of world history

		the environment and the tasks of education), including some world religions, philosophical and ethical teachings.	traditions of the world (depending on the environment and the tasks of education), including some world religions, philosophical and ethical teachings. Makes minor mistakes.	and a number of cultural traditions of the world (depending on the environment and the tasks of education), including various world religions, philosophical and ethical teachings.
Learning outcomes: <i>Indicator:</i> ID-3 UK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when choosing ways of constructive interaction with people, taking into account their socio-cultural characteristics in order to successfully perform professional tasks and strengthen social integration.	Quite confidently chooses ways of constructive interaction with people, taking into account their socio-cultural characteristics, in order to successfully perform professional tasks and strengthen social integration. Makes minor mistakes.	Independently and responsibly chooses ways of constructive interaction with people, taking into account their socio-cultural characteristics, in order to successfully perform professional tasks and strengthen social integration.
Learning outcomes: <i>Indicator:</i> ID-4 UK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the analysis of various socio-cultural trends, facts and phenomena on the basis of a holistic view of the foundations of the universe and the prospects for its development, insufficiently understands the relationship between the diversity of worldviews and the course of development of history, science, man's ideas about nature, society, cognition and himself.	Quite confidently analyzes various socio-cultural trends, facts and phenomena on the basis of a holistic view of the foundations of the universe and the prospects for its development, in general understands the relationship between the diversity of worldviews and the course of development of history, science, human ideas about nature, society, cognition and himself. Makes minor mistakes.	Fully analyzes various socio-cultural trends, facts and phenomena on the basis of a holistic view of the foundations of the universe and the prospects for its development, independently understands the relationship between the diversity of worldviews and the course of development of history, science, human ideas about nature, society, cognition and himself.
Competency: UK-6				

Learning outcomes: <i>Indicator:</i> ID-1 UK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in determining personal and professional goals in accordance with the level of his resources and priorities of actions, for successful development in the chosen field of professional activity.	Quite confidently sets personal and professional goals in accordance with the level of his resources and priorities of actions, for successful development in the chosen field of professional activity. Makes minor mistakes.	Independently and competently sets personal and professional goals in accordance with the level of his resources and priorities of actions, for successful development in the chosen field of professional activity.
Learning outcomes: <i>Indicator:</i> ID-2 UK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the implementation and adjustment of the strategy of personal and professional development, taking into account the conditions, means, personal capabilities, stages of career growth, the time perspective of the development of activities and the requirements of the labor market.	In general, correctly implements and adjusts the strategy of personal and professional development, taking into account the conditions, means, personal capabilities, stages of career growth, time perspective for the development of activities and the requirements of the labor market. Makes minor mistakes.	Independently, fully implements and adjusts the strategy of personal and professional development, taking into account the conditions, means, personal capabilities, stages of career growth, time perspective for the development of activities and the requirements of the labor market.
Learning outcomes: <i>Indicator:</i> ID-3 UK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of critical assessment of the effectiveness of the use of time and other resources in solving tasks in the chosen field of professional activity.	Basically, he critically evaluates the effectiveness of the use of time and other resources in solving tasks in the chosen field of professional activity. Makes minor mistakes.	Fully critically assesses the effectiveness of the use of time and other resources in solving tasks in the chosen field of professional activity.
Competency: UK-7				
Learning outcomes: <i>Indicator:</i> ID-1 UK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the use of health-saving technologies to ensure full-fledged social and professional activities, taking into	He mainly uses health-saving technologies to ensure full-fledged social and professional activities, taking into account the physiological characteristics of	Fully uses health-saving technologies to ensure full-fledged social and professional activities, taking into account the

		account the physiological characteristics of the body and living conditions.	the body and living conditions. Makes minor mistakes.	physiological characteristics of the body and living conditions.
Learning outcomes: <i>Indicator:</i> ID-2 UK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in planning his work and free time for the optimal combination of physical and mental load and ensuring efficiency in professional activities.	Sufficiently plans his working and free time for the optimal combination of physical and mental load and ensuring efficiency in professional activities. Makes minor mistakes.	Fully plans his working and free time for the optimal combination of physical and mental load and ensuring efficiency in professional activities.
Learning outcomes: <i>Indicator:</i> ID-3 UK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in maintaining the proper level of physical fitness to ensure full-fledged social and professional activities and in observing the norms of a healthy lifestyle.	Sufficiently maintains the proper level of physical fitness to ensure full social and professional activities and observes the norms of a healthy lifestyle. Makes minor mistakes.	Fully maintains the proper level of physical fitness to ensure full-fledged social and professional activities and observes the norms of a healthy lifestyle.
Competence: UK-8				
Learning outcomes: <i>Indicator:</i> ID-1 UK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in ensuring security and sustainable development in various spheres of life; as well as in classifying military emergencies, based on knowledge of the principles and methods of organizing the protection of the population from dangers arising in peacetime and during military operations.	Basically, correctly ensures safety and sustainable development in various spheres of life; classifies military emergencies based on knowledge of the principles and methods of organizing the protection of the population from dangers arising in peacetime and during military operations. Makes minor mistakes.	Competently ensures safety and sustainable development in various spheres of life; classifies military emergencies based on knowledge of the principles and methods of organizing the protection of the population from dangers arising in peacetime and during hostilities.
Learning outcomes: <i>Indicator:</i> ID-2 UK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when assessing the probability of potential danger	In general, correctly assesses the probability of potential danger in everyday life and professional activities and takes measures to	Fully assesses the probability of potential danger in every-

		ger in everyday life and professional activities and taking measures to prevent it.	prevent it. Makes minor mistakes.	day life and professional activities and takes effective measures to prevent it.
Learning outcomes: <i>Indicator:</i> ID-3 UK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the application of basic methods of protection in the threat and occurrence of emergencies and military conflicts in everyday life and professional activities.	In general, correctly applies the basic methods of protection in the threat and occurrence of emergencies and military conflicts in everyday life and professional activities. Makes minor mistakes.	With great efficiency, he applies the basic methods of protection in the threat and occurrence of emergencies and military conflicts in everyday life and professional activities.
Competency: UK-9				
Learning outcomes: <i>Indicator:</i> ID-1 UK-9	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the basic principles of the functioning of the economy and economic development, the goals and forms of state participation in the economy.	In general, he correctly understands the basic principles of the functioning of the economy and economic development, the goals and forms of state participation in the economy. Makes minor mistakes.	Fully understands the basic principles of the functioning of the economy and economic development, the goals and forms of state participation in the economy.
Learning outcomes: <i>Indicator:</i> ID-2 UK-9	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of applying personal economic and financial planning methods to achieve current and long-term financial goals.	In general, correctly applies the methods of personal economic and financial planning to achieve current and long-term financial goals. Makes minor mistakes.	Competently applies the methods of personal economic and financial planning to achieve current and long-term financial goals.
Learning outcomes: <i>Indicator:</i> ID-3 UK-9	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using financial instruments to manage personal finances, as well as when controlling their own economic and financial risks.	Basically, he correctly uses financial instruments to manage personal finances, controls his own economic and financial risks. Makes minor mistakes.	Competently and independently uses financial instruments to manage personal finances, controls his own economic and financial risks.
Competence: UK-10				

Learning outcomes: <i>Indicator:</i> ID-1 UK-10	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the current legal norms that ensure the fight against corruption in various areas of life, in the ways of preventing corruption and forming an intolerant attitude towards it.	He is sufficiently familiar with the current legal norms that ensure the fight against corruption in various areas of life, with ways to prevent corruption and form an intolerant attitude towards it.	He is fully familiar with the current legal norms that ensure the fight against corruption in various areas of life, with ways to prevent corruption and form an intolerant attitude towards it.
Learning outcomes: <i>Indicator:</i> ID-2 UK-10	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the prevention of corruption risks in professional activities; in the exclusion of interference in his/her professional activities in cases of inducement to corruption offenses.	Sufficiently prevents corruption risks in professional activities; excludes interference in their professional activities in cases of inducement to corruption offenses.	Fully prevents corruption risks in professional activities; excludes interference in his/her professional activities in cases of inducement to corruption offenses.
Learning outcomes: <i>Indicator:</i> ID-3 UK-10	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in interaction in society based on intolerance of corruption.	It almost unmistakably interacts in society on the basis of an intolerant attitude to corruption.	He fully interacts in society on the basis of an intolerant attitude to corruption.
Competency: OPK-1				
Learning outcomes: <i>Indicator:</i> ID-1 OPK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the fundamental laws of nature and the basic physical mathematical laws and methods of accumulating, transmitting and processing information.	Generally correctly understands the fundamental laws of nature and the basic physical mathematical laws and methods of accumulating, transmitting and processing information. Makes minor mistakes.	Fully understands the fundamental laws of nature and the basic physical mathematical laws and methods of accumulating, transmitting and processing information.
Learning outcomes: <i>Indicator:</i> ID-2 OPK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of applying physical laws and mathematical methods to solve problems of a theoretical and applied nature.	Basically, correctly applies physical laws and mathematical methods to solve problems of a theoretical and applied nature. Makes minor mistakes.	Competently applies physical laws and mathematical methods to solve problems of a theoretical and applied nature.

Learning outcomes: <i>Indicator:</i> ID-3 OPK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of using knowledge of physics and mathematics in solving practical problems.	Basically, correctly uses knowledge of physics and mathematics when solving practical problems. Makes minor mistakes.	Uses knowledge of physics and mathematics with great efficiency in solving practical problems.
Competency: OPK-2				
Learning outcomes: <i>Indicator:</i> ID-1 OPK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the search and critical analysis of information necessary to solve the problem.	In general, correctly finds and critically analyzes the information necessary to solve the problem. Makes minor mistakes.	Competently finds and critically analyzes the information necessary to solve the problem.
Learning outcomes: <i>Indicator:</i> ID-2 OPK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of developing a solution to a specific problem, choosing the best option, assessing its advantages and disadvantages.	Basically, he correctly develops a solution to a specific problem, choosing the best option, evaluating its advantages and disadvantages. Makes minor mistakes.	Independently and competently develops a solution to a specific problem, choosing the best option, evaluating its advantages and disadvantages.
Learning outcomes: <i>Indicator:</i> ID-3 OPK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the basic methods and means of conducting experimental research, as well as standardization and certification systems.	In general, he correctly understands the main methods and means of conducting experimental research, standardization and certification systems. Makes minor mistakes.	Fully understands the basic methods and means of conducting experimental research, standardization and certification systems.
Learning outcomes: <i>Indicator:</i> ID-4 OPK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of choosing methods and means of measurement and conducting experimental research.	In general, he correctly chooses methods and means of measurement and conducts experimental research. He makes minor mistakes.	Competently and independently chooses methods and means of measurement and effectively conducts experimental research.
Learning outcomes: <i>Indicator:</i> ID-5 OPK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the application of methods for processing and presenting the data obtained,	Quite confidently knows the methods of processing and pre-	He is fully proficient in the methods of processing and presenting the data obtained

		as well as assessing the error of measurement results.	sending the data obtained and assessing the error of measurement results. Makes minor mistakes.	and assessing the error of measurement results.
Competency: OPK-3				
Learning outcomes: <i>Indicator:</i> ID-1 OPK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the basic patterns of information transmission in information and communication systems, the main types of signals used in telecommunication systems, the features of the transmission of various signals through channels and paths of telecommunication systems.	In general, correctly understands the basic patterns of information transmission in information and communication systems, the main types of signals used in telecommunication systems, the features of the transmission of various signals through channels and paths of telecommunication systems. Makes minor mistakes.	Fully understands the basic patterns of information transmission in infocommunication systems, the main types of signals used in telecommunication systems, the features of the transmission of various signals through channels and paths of telecommunication systems.
Learning outcomes: <i>Indicator:</i> ID-2 OPK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the principles, basic algorithms and devices of digital signal processing; the principles of building telecommunication systems of various types and methods of information distribution in communication networks.	In general, he correctly understands the principles, basic algorithms and devices of digital signal processing; the principles of building telecommunication systems of various types and methods of information distribution in communication networks. Makes minor mistakes.	Fully understands the principles, basic algorithms and devices of digital signal processing; the principles of building telecommunication systems of various types and methods of information distribution in communication networks.
Learning outcomes: <i>Indicator:</i> ID-3 OPK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when solving data processing problems using computer technology.	Basically, correctly solves data processing problems using computer technology. Makes minor mistakes.	Competently and independently solves the problems of data processing with the help of computer technology.
Learning outcomes: <i>Indicator:</i> ID-4 OPK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the development of probabilistic models for specific processes, carrying out	Basically, correctly builds probabilistic models for specific processes, conducts the necessary	Independently builds probabilistic models for specific processes, competently conducts

		the necessary calculations within the framework of the constructed model.	calculations within the framework of the built model. Makes minor mistakes.	the necessary calculations within the framework of the built model.
Learning outcomes: <i>Indicator:</i> ID-5 OPK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using information security methods.	He mainly knows the methods and skills of ensuring information security. Makes minor mistakes.	He is fluent in the methods and skills of ensuring information security.
Competency: OPK-4				
Learning outcomes: <i>Indicator:</i> ID-1 OPK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using information and communication technologies when searching for the necessary information.	Basically, correctly uses information and communication technologies when searching for the necessary information. Makes minor mistakes.	Makes full use of information and communication technologies when searching for the necessary information.
Learning outcomes: <i>Indicator:</i> ID-2 OPK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when designing a solution to a specific project problem, choosing the best way to solve it, based on current legal norms and available resources and restrictions.	In general, correctly designs the solution to a specific project problem, choosing the best way to solve it, based on the current legal norms and available resources and restrictions. Makes minor mistakes.	Competently and independently designs a solution to a specific project task, choosing the best way to solve it, based on current legal norms and available resources and restrictions.
Learning outcomes: <i>Indicator:</i> ID-3 OPK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages.	In general, the child correctly understands modern interactive software systems and the basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages. Makes minor mistakes.	Fully understands modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general and special-purpose software packages.

Learning outcomes: <i>Indicator:</i> ID-4 OPK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the use of the capabilities of computer technology and software to solve problems of control and algorithmization of information processing processes.	Basically, correctly uses the capabilities of computer technology and software to solve problems of control and algorithmization of information processing processes. Makes minor mistakes.	With great efficiency, it uses the capabilities of computer technology and software to solve problems of control and algorithmization of information processing processes.
Learning outcomes: <i>Indicator:</i> ID-5 OPK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using methods of computer modeling of physical processes in the transmission of information, as well as the use of engineering and computer graphics techniques.	He is quite confident in the methods of computer modeling of physical processes in the transmission of information, engineering and computer graphics techniques. He makes minor mistakes.	He is fully proficient in the methods of computer modeling of physical processes in the transmission of information, engineering and computer graphics techniques.
Competence: OPK-5				
Learning outcomes: <i>Indicator:</i> ID-1 OPK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when choosing programming languages and languages for working with databases, environments for the development of information systems and technologies, based on the existing tasks.	Quite confidently chooses programming languages and languages for working with databases, environments for the development of information systems and technologies, based on the existing tasks. Makes minor mistakes.	Competently chooses programming languages and languages for working with databases, environments for the development of information systems and technologies, based on existing tasks.
Learning outcomes: <i>Indicator:</i> ID-2 OPK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when reading the codes of software products written in mastered programming languages, and making the required changes.	Reads the codes of software products written in mastered programming languages quite confidently and makes the necessary changes. Makes minor mistakes.	Competently and independently reads the codes of software products written in mastered programming languages, and makes the required changes.

Learning outcomes: <i>Indicator:</i> ID-3 OPK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the development of original algorithms and computer programs suitable for practical application.	Quite confidently develops original algorithms and computer programs suitable for practical use. Makes minor mistakes.	With great efficiency, it develops original algorithms and computer programs suitable for practical application.
Competency: PK-1				
Learning outcomes: <i>Indicator:</i> ID-1 PK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding and orientation in the principles of construction and operation of communication networks, including their constituent subsystems, and signaling protocols, standards for the quality of data, voice and video transmission used in communication networks, in the legislation of the Russian Federation in the field of communications.	In general, he correctly understands and orients himself in the principles of construction and operation of communication networks, including their constituent subsystems, and signaling protocols, standards for the quality of data, voice and video transmission used in communication networks, in the legislation of the Russian Federation in the field of communications. Makes minor mistakes.	Fully understands and is guided by the principles of construction and operation of communication networks, including their constituent subsystems, and signaling protocols, standards for the quality of data, voice and video transmission used in communication networks, in the legislation of the Russian Federation in the field of communications.
Learning outcomes: <i>Indicator:</i> ID-2 PK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the analysis of statistical parameters of traffic, the development of decisions on the operational reconfiguration of the network, changing the parameters of the switching subsystem, network platforms, the use of equipment of new technologies; as well as changing and adjusting the parameters of the switching subsystem, transport networks and data transmission networks, on the	In general, it correctly analyzes the statistical parameters of traffic, develops solutions for the prompt reconfiguration of the network, changing the parameters of the switching subsystem, network platforms, for the use of equipment for new technologies; changing and adjusting the parameters of the switching subsystem, transport networks and data transmission networks, for organizing new and expanding	Competently analyzes the statistical parameters of traffic, develops solutions for the prompt reconfiguration of the network, changing the parameters of the switching subsystem, network platforms, for the use of new technology equipment; changing and adjusting the parameters of the switching subsystem, transport networks and data transmission networks, for organizing

		organization of new and expansion of existing communication directions.	existing communication directions. Makes minor mistakes.	new and expanding existing communication directions.
Learning outcomes: <i>Indicator:</i> ID-3 PK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the analysis of statistics of the main performance indicators of radio systems and data transmission systems, the development of measures to maintain them at the required level, and the calculation of the capacity of telecommunication networks.	Basically , correctly analyzes the statistics of the main indicators of the efficiency of radio systems and data transmission systems, develops measures to maintain them at the required level, and calculates the bandwidth of telecommunications networks. Makes minor mistakes.	Independently analyzes the statistics of the main performance indicators of radio systems and data transmission systems, develops measures to maintain them at the required level, and calculates the capacity of telecommunications networks.
Learning outcomes: <i>Indicator:</i> ID-4 PK-1	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the development of communication schemes and integration of new network elements, the construction and expansion of the switching subsystem and network platforms; the performance of work on switching equipment, the deployment of service platform equipment, the equipment of new technologies on the network, the implementation of plans to expand the existing equipment of network platforms and new technologies.	Quite confidently develops schemes for the organization of communication and integration of new network elements, builds and expands the switching subsystem and network platforms; performs work on switching equipment, deploys equipment of service platforms, equipment of new technologies on the network, fulfills plans for the expansion of existing equipment of network platforms and new technologies. Makes minor mistakes.	With great efficiency, develops schemes for the organization of communication and integration of new network elements, builds and expands the switching subsystem and network platforms; performs work on switching equipment, deploys equipment for service platforms, equipment for new technologies on the network, fulfills plans for the expansion of existing equipment of network platforms and new technologies.
<i>Competency: PK-2</i>				

Learning outcomes: <i>Indicator:</i> ID-1 PK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the basics of electrical engineering, network technologies, principles of operation, indicators of the use and functioning of telecommunication equipment, the requirements of technical regulations, international and national standards and other regulatory documents in the field of assessing the quality indicators of the operation of information and communication equipment.	In general, he correctly understands the basics of electrical engineering, network technologies, principles of operation, indicators of the use and functioning of telecommunication equipment, the requirements of technical regulations, international and national standards and other regulatory documents in the field of assessing the quality indicators of information and communication equipment. Makes minor mistakes.	Fully understands the basics of electrical engineering, network technologies, principles of operation, indicators of the use and functioning of telecommunication equipment, the requirements of technical regulations, international and national standards and other regulatory documents in the field of assessing the quality indicators of information and communication equipment.
Learning outcomes: <i>Indicator:</i> ID-2 PK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in compliance with the requirements of programs and methods for conducting experimental tests of communication facilities and systems (information and communication equipment).	Quite confidently complies with the requirements of programs and methods for conducting experimental tests of objects and communication systems (information and communication equipment). Makes minor mistakes.	Fully complies with the requirements of programs and methods for conducting experimental tests of communication facilities and systems (information and communication equipment).
Learning outcomes: <i>Indicator:</i> ID-3 PK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when working with software used in the processing of information of information and communication systems and their components, technical means of data collection and processing, with various information systems and databases.	In general, it correctly works with software used in the processing of information from infocommunication systems and their components, technical means of data collection and processing, with various information systems and databases. Makes minor mistakes.	Competently and independently works with software used in the processing of information from infocommunication systems and their components, technical means of data collection and processing, with various information systems and databases.

Learning outcomes: <i>Indicator:</i> ID-4 PK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when monitoring the quality indicators of information and communication equipment in accordance with their standard indicators.	In general, correctly controls the quality indicators of the information and communication equipment in accordance with their regulatory indicators. Makes minor mistakes.	Effectively controls the quality indicators of the operation of information and communication equipment in accordance with their regulatory indicators.
Learning outcomes: <i>Indicator:</i> ID-5 PK-2	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when conducting experimental studies on existing programs and methods of testing objects and communication systems (information and communication equipment) in order to assess their quality performance.	In general, he correctly conducts experimental research on the existing programs and methods of testing objects and communication systems (information and communication equipment) in order to assess their quality performance. Makes minor mistakes.	Competently and independently conducts experimental research on existing programs and methods of testing objects and communication systems (information and communication equipment) in order to assess their quality performance.
Competency: PK-3				
Learning outcomes: <i>Indicator:</i> ID-1 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the understanding of regulatory, regulatory, technical, organizational and methodological documents governing the design preparation, implementation and operation of communication systems (telecommunication systems), the construction of facilities and communication lines.	In general, he correctly understands the regulatory, normative, technical, organizational and methodological documents governing the design preparation, implementation and operation of communication systems (telecommunication systems), the construction of facilities and communication lines. Makes minor mistakes.	Fully understands the regulatory, regulatory, technical, organizational and methodological documents governing the design preparation, implementation and operation of communication systems (telecommunication systems), the construction of facilities and communication lines.
Learning outcomes: <i>Indicator:</i> ID-2 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the application of technologies used on the transport network, with modern requirements for performance,	Basically, correctly operates the technologies used on the transport network, modern requirements for performance,	Perfectly operates with the technologies used in the transport network, modern requirements for performance,

		availability, security, scalability, integration of technologies, manageability of communication systems (telecommunications); principles of planning the capacity of radio access networks.	availability, security, scalability, technology integration, manageability of communication systems (telecommunications); principles of planning the capacity of radio access networks. Makes minor mistakes.	availability, security, scalability, technology integration, manageability of communication systems (telecommunications); principles of planning the capacity of radio access networks.
Learning outcomes: <i>Indicator:</i> ID-3 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when calculating the parameters and characteristics of the network and infocommunication tools, analyzing their quality indicators based on statistics and radio measurements, using specialized design software.	Basically, correctly calculates the parameters and characteristics of the network and infocommunication tools, analyzes their qualitative indicators based on statistics and radio measurements, uses specialized design software. Makes minor mistakes.	Competently and independently calculates the parameters and characteristics of the network and infocommunication tools, analyzes their qualitative indicators based on statistics and radio measurements, uses specialized design software.
Learning outcomes: <i>Indicator:</i> ID-4 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when identifying and analyzing the advantages and disadvantages of design solutions, assessing the risks associated with the implementation of the project.	Quite confidently identifies and analyzes the advantages and disadvantages of design solutions, assesses the risks associated with the implementation of the project. Makes minor mistakes.	Competently and independently identifies and analyzes the advantages and disadvantages of design solutions, assesses the risks associated with the implementation of the project.
Learning outcomes: <i>Indicator:</i> ID-5 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when collecting initial data for the design of the network and infocommunication tools, determining the optimal configuration and topology of the transport network; developing technical solutions for the	Quite confidently collects initial data for the design of the network and infocommunication facilities, determining the optimal configuration and topology of the transport network; develops technical solutions for the implementation of the communication	Independently collects initial data for the design of the network and infocommunication tools, determines the optimal configuration and topology of the transport network; competently develops technical solutions for the implementation

		implementation of the communication system (telecommunication system) and its components.	system (telecommunication system) and its components. Makes minor mistakes.	of the communication system (telecommunication system) and its components.
Learning outcomes: <i>Indicator:</i> ID-6 PK-3	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the development of circuit design solutions for the components of radio electronic facilities, the selection of the element base for the development of circuit solutions, the conduct of automated modeling and experimental work to check the technical characteristics of the modernized radio electronic facilities	Quite confidently carries out the development of circuit design solutions for the components of radio-electronic facilities, the selection of the element base for the development of circuit solutions, conducts automated modeling and experimental work to check the technical characteristics of the modernized radio-electronic facilities. Makes minor mistakes.	Fully carries out the development of circuit design solutions for the components of radio electronic facilities, the selection of the element base for the development of circuit solutions, conducts automated modeling and experimental work to check the technical characteristics of the modernized radio electronic facilities.
Competency: PK-4				
Learning outcomes: <i>Indicator:</i> ID-1 PK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in compliance with the principles of the system approach in the design of communication systems (telecommunications), infocommunication facilities and their components, requirements for the development of technical documentation.	In general, correctly observes the principles of the system approach in the design of communication systems (telecommunications), infocommunication facilities and their components, the requirements for the development of technical documentation. Makes minor mistakes.	Fully complies with the principles of the system approach in the design of communication systems (telecommunications), infocommunication facilities and their components, the requirements for the development of technical documentation.
Learning outcomes: <i>Indicator:</i> ID-2 PK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding and orientation in the principles of construction and operation of infocommunication tools and their components, modern	In general, he correctly understands and navigates the principles of construction and operation of infocommunication tools and their components, modern	Fully understands and is guided by the principles of construction and operation of infocommunication tools and their components, modern

		technical solutions for the implementation of communication systems (telecommunication systems) and its components, the software used.	technical solutions for the implementation of communication systems (telecommunication systems) and its components, the software used. Makes minor mistakes.	technical solutions for the implementation of communication systems (telecommunication systems) and its components, and the software used.
Learning outcomes: <i>Indicator:</i> ID-3 PK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the development of project documentation in accordance with standards and technical regulations; development and presentation of presentation materials on the project.	Quite confidently develops project documentation in accordance with standards and technical regulations; develops and presents presentation materials for the project. Makes minor mistakes.	Competently and independently develops project documentation in accordance with standards and technical regulations; develops and submits presentation materials for the project.
Learning outcomes: <i>Indicator:</i> ID-4 PK-4	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the course of developing technical solutions when creating a communication system (telecommunication system) and its components; preparing a communication organization scheme, equipment placement plan, passage scheme and other necessary documents; estimating the costs of creating (modernizing) a communication system (telecommunication system).	Basically, correctly develops technical solutions for the creation of a communication system (telecommunication system) and its components; prepares a communication organization scheme, equipment placement plan, passage scheme and other necessary documents; estimates of costs for the creation (modernization) of a communication system (telecommunication system). Makes minor mistakes.	Accurately and reasonably develops technical solutions for the creation of a communication system (telecommunication system) and its components; preparation of a communication organization scheme, equipment placement plan, passage scheme and other necessary documents; estimation of costs for the creation (modernization) of a communication system (telecommunication system).
Competency: PK-5				

Learning outcomes: <i>Indicator:</i> ID-1 PK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when understanding the current industry standards that determine the requirements for the parameters of equipment, channels and paths; methods for checking the technical condition of equipment, paths and transmission channels.	In general, he correctly understands the current industry standards that determine the requirements for the parameters of the operation of equipment, channels and paths; methods for checking the technical condition of equipment, paths and transmission channels. Makes minor mistakes.	Perfectly understands the current industry standards that determine the requirements for the parameters of the operation of equipment, channels and paths; methods for checking the technical condition of equipment, paths and transmission channels.
Learning outcomes: <i>Indicator:</i> ID-2 PK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in compliance with the technologies for setting up, adjusting and testing communication (telecommunications) equipment, operating rules and methods of using measuring and testing equipment.	In general, correctly observes the technologies for setting up, adjusting and testing communication equipment (telecommunications), operating rules and methods of using measuring and testing equipment. Makes minor mistakes.	Accurately and reasonably observes the technologies for setting up, adjusting and testing communication (telecommunications) equipment, operating rules and methods of using measuring and testing equipment.
Learning outcomes: <i>Indicator:</i> ID-3 PK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when making adjustments, adjustments and tests of communication equipment (telecommunications) using technical and technological documentation; maintaining technical and technological documentation in accordance with the established forms; checking the quality of equipment and communication facilities.	Confidently performs settings, adjustments and tests of communication equipment (telecommunications) using technical and technological documentation; maintains technical and technological documentation in accordance with the established forms; checks the quality of equipment and communication facilities. Makes minor mistakes.	Competently and independently performs settings, adjustments and tests of communication equipment (telecommunications) using technical and technological documentation; maintains technical and technological documentation in accordance with the established forms; checks the quality of equipment and communication facilities.

Learning outcomes: <i>Indicator:</i> ID-4 PK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes during the incoming inspection of equipment, preparation of testing equipment, measuring equipment, devices; testing equipment and working out the operating modes of the equipment.	Basically, correctly conducts incoming inspection of equipment, preparation of testing equipment, measuring equipment, devices; testing of equipment and development of equipment operating modes. Makes minor mistakes.	Perfectly conducts incoming inspection of equipment, preparation of test equipment, measuring equipment, devices; testing of equipment and development of equipment operating modes.
Learning outcomes: <i>Indicator:</i> ID-5 PK-5	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the selection and use of appropriate test and measuring equipment, the use of equipment software when setting it up.	Quite confidently selects and uses the appropriate test and measuring equipment, uses the equipment software when setting it up. Makes minor mistakes.	Independently and competently selects and uses the appropriate test and measuring equipment, uses the equipment software when setting it up.
Competency: PK-6				
Learning outcomes: <i>Indicator:</i> ID-1 PK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the architecture and general principles of functioning, hardware, software and software and hardware of the administered network, the procedure for configuring network elements of the information and communication system.	In general, he correctly understands the architecture and general principles of the functioning of hardware, software and software and hardware of the administered network, the procedure for configuring network elements of the information and communication system. Makes minor mistakes.	Perfectly understands the architecture and general principles of functioning of hardware, software and software and hardware of the administered network, the procedure for configuring network elements of the information and communication system.
Learning outcomes: <i>Indicator:</i> ID-2 PK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using modern standards when administering devices and software; using standard and external software and hardware to monitor the performance of the network	Basically, correctly uses modern standards when administering devices and software; uses standard and external software and hardware to monitor the per-	Competently and independently uses modern standards in the administration of devices and software; uses standard and external software and hardware to monitor the performance of the network

		infrastructure of the administered network.	formance of the network infrastructure of the administered network. Makes minor mistakes.	infrastructure of the administered network.
Learning outcomes: <i>Indicator:</i> ID-3 PK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when diagnosing failures and errors of network devices and software.	Confidently diagnoses failures and errors of network devices and software. Makes minor errors.	Diagnoses failures and errors of network devices and software with great efficiency.
Learning outcomes: <i>Indicator:</i> ID-4 PK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when carrying out routine maintenance on network devices and software of the infocommunication system.	Quite confidently carries out routine maintenance on network devices and software of the information and communication system. Makes minor mistakes.	Competently carries out routine maintenance on network devices and software of the information and communication system.
Learning outcomes: <i>Indicator:</i> ID-5 PK-6	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in the installation and configuration of system and application software necessary for the functioning of the IS in accordance with the work assignment, the implementation of standard design and parameterization of the IS in accordance with the regulations of the organization.	Quite confidently performs the installation and configuration of system and application software necessary for the functioning of the IS in accordance with the work assignment, carries out standard design and parameterization of the IS in accordance with the regulations of the organization. Makes minor mistakes.	Competently performs installation and configuration of system and application software necessary for the functioning of the IS in accordance with the work assignment, carries out standard design and parameterization of the IS in accordance with the regulations of the organization.
Competency: PK-7				
Learning outcomes: <i>Indicator:</i> ID-1 PK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding and using the basic principles, protocols and software cryptographic tools for ensuring the information security of network devices.	Generally correctly understands and uses the basic principles, protocols and software cryptographic tools for ensuring the information security of network devices. Makes minor mistakes.	Perfectly understands and uses the basic principles, protocols and software cryptographic tools for ensuring the information security of network devices.

Learning outcomes: <i>Indicator:</i> ID-2 PK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes in understanding the general principles of functioning and architecture of hardware, software, software and hardware of the administered network; protocols of the channel, network, transport and application layers of the model of interaction of open systems.	In general, he correctly understands the general principles of functioning and architecture of hardware, software, software and hardware of the administered network; protocols of the channel, network, transport and application layers of the model of interaction of open systems. Makes minor mistakes.	Perfectly understands the general principles of operation and architecture of hardware, software, software and hardware of the administered network; protocols of the channel, network, transport and application layers of the model of interaction of open systems.
Learning outcomes: <i>Indicator:</i> ID-3 PK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using software, hardware and software and hardware to protect network devices from unauthorized access; configuring the parameters of modern software and hardware firewalls.	Quite confidently applies software, hardware and software and hardware to protect network devices from unauthorized access; adjusts the parameters of modern software and hardware firewalls. Makes minor mistakes.	With great efficiency, it uses software, hardware and software and hardware means to protect network devices from unauthorized access; adjusts the parameters of modern software and hardware firewalls.
Learning outcomes: <i>Indicator:</i> ID-4 PK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when connecting and configuring modern remote access security tools (operating systems and specialized protocols); working with control and measuring hardware and software.	Confidently connects and configures modern remote access security tools (operating systems and specialized protocols); works with control and measurement hardware and software. Makes minor mistakes.	Competently connects and configures modern remote access security tools (operating systems and specialized protocols); effectively works with control and measurement hardware and software.
Learning outcomes: <i>Indicator:</i> ID-5 PK-7	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when installing additional software products to ensure remote access security and parameterization.	Generally correctly installs additional software products to ensure remote access security and parameterization. Makes minor errors.	Competently and independently installs additional software products to ensure the security of remote access and their parameterization.
<i>Competency: PK-8</i>				

Learning outcomes: <i>Indicator:</i> ID-1 PK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when following the instructions for the installation and operation of the managed network devices and software; the regulations for carrying out preventive maintenance on the administered information and communication system.	In general, correctly follows the instructions for the installation and operation of the administered network devices and software; the regulations for preventive maintenance on the administered information and communication system. Makes minor mistakes.	Perfectly complies with the instructions for the installation and operation of the managed network devices and software; the regulations for preventive maintenance on the administered information and communication system.
Learning outcomes: <i>Indicator:</i> ID-2 PK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when installing operating systems of network devices; monitoring of managed network devices; using standard data recovery procedures, working with archiving servers and operating system management tools; scheduling backup of operating systems of network devices; disassembling and assembling administered network devices.	Generally correctly installs the operating systems of network devices; monitors administered network devices; uses standard data recovery procedures, works with backup servers and operating system management tools; schedules backups of network device operating systems; disassembles and reassembles administered network devices. Makes minor errors.	Correctly and independently installs the operating systems of network devices; monitors the administered network devices; uses standard data recovery procedures, works with archiving servers and operating system management tools; draws up a backup schedule for the operating systems of network devices; disassembles and assembles the administered network devices.
Learning outcomes: <i>Indicator:</i> ID-3 PK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when using modern tools for monitoring the performance of the administered network; using regulatory and technical documentation in the field of information and communication technologies to solve problems.	Uses modern means of monitoring the performance of the administered network quite confidently; uses regulatory and technical documentation in the field of information and communication technologies to solve problems. Makes minor mistakes.	Uses modern means of monitoring the performance of the administered network with great efficiency; uses regulatory and technical documentation in the field of information and communication technologies to solve problems.

Learning outcomes: <i>Indicator:</i> ID-4 PK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes when rebooting the operating systems of network devices, planning the schedule for copying the software of the network infocommunication system, restoring parameters using archiving servers and management tools of specialized operating systems of network equipment.	In general, it correctly performs work on rebooting the operating systems of network devices, planning the schedule for copying the software of the network infocommunication system, restoring parameters using archiving servers and management tools of specialized operating systems of network equipment. Makes minor errors.	Perfectly performs work on rebooting the operating systems of network devices, planning the schedule for copying the software of the network infocommunication system, restoring parameters using archiving servers and management tools for specialized operating systems of network equipment.
Learning outcomes: <i>Indicator:</i> ID-5 PK-8	Unable to complete tasks related to this competency achievement indicator.	Makes mistakes during routine maintenance of equipment in accordance with the manufacturer's recommendations.	In general, it correctly conducts routine maintenance of equipment in accordance with the manufacturer's recommendations. Makes minor mistakes.	With great efficiency, it carries out routine maintenance of equipment in accordance with the manufacturer's recommendations.

9.2 Criteria for assessing competencies at the defense of the final qualification work

The criteria for assessing the level of competence to be defended are as follows.

The grade "**excellent**" is given for the following work:

- advanced level of mastery of most competencies;
- a high level of relevance, independence and practical significance of the thesis;
- originality of solutions and novelty of the results obtained, personal contribution of the author;
- validity of results and conclusions from the standpoint of logic in the presentation and discussion of own data, their compliance with known scientific provisions and facts, the correctness of the use of research methods;
- use of a sufficient and necessary number of information sources, including electronic ones;
- the ability to concisely report on the work done, convincingly substantiate their judgments and conclusions, reason reasonably, fully and deeply answer the questions and comments of reviewers;
- impeccable quality of thesis design and presentation;
- positive feedback and review.

The grade "**good**" is given for the following work:

- the basic level of mastering most competencies;
- medium level of relevance, independence and practical significance of the thesis;
- correctness of decisions and results obtained;
- validity of results and conclusions;
- use of a sufficient and necessary number of information sources, including electronic ones;
- the ability to clearly report on the work done, substantiate their judgments and conclusions, reason, answer questions and comments of reviewers;
- good quality of thesis design and presentation;
- In general, positive feedback and reviews, but with some comments.

The grade "**satisfactory**" is given for the following work:

- the threshold level of mastering most competencies;
- the traditional nature of the topic, the low level of independence and practical significance of the thesis;
- insufficiency and/or disputability of individual decisions and/or results;
- the use of a small number of information sources, including electronic ones,
- acceptable quality of thesis registration, but with existing shortcomings,
- incompleteness of the report on the work done, insufficiently substantiated judgments and conclusions, errors in the construction of reasoning, superficial answers to the questions asked and comments of reviewers,
- review and review with comments.

The grade "**unsatisfactory**" is given for the following work:

- insufficient level of mastery of most competencies;
- does not know the content of the work, cannot comment on its elementary provisions;
- in the process of the report, makes gross mistakes in reasoning;
- incorrectly answers or does not answer leading and additional questions of the commission on the content of the thesis and the comments of the reviewers;
- low quality of work design;
- review and review with serious remarks.

9.3 Description of the rating scale

The defense of the final qualification work is evaluated according to a 5-point system.

Appendix A
Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Educational
Institution of higher education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

Institute of Advanced Engineering
Department of Digital, Robotic Systems and Electronics
Area of study 11.03.02 "Infocommunication Technologies and Communication Systems"
Profile "Intelligent Data Processing in Infocommunication Systems and Networks"

"APPROVED BY"

Acting Director of Digital,
Robotic systems and
electronics

_____ I.V. Azarov

(signature)

" ____ " _____ 2026

ASSIGNMENT FOR THE FINAL QUALIFICATION WORK
(DIPLOMA PROJECT)

Student _____ *Last Name First Name Patronymic* _____ Group *ITS-b-*
oz-23-1

1. Theme *Development of a multiplexer with combinatorial aggregation*
digital streams

APPROVED BY the Institute's Order of _____ No _____

2. The deadline for submitting the work for defense " ____ " _____ 2026.

3. Initial data for design *materials obtained during the*
pre-graduation practice at the enterprise, the charter of the enterprise and
Recommendations of the company's personnel

4. Content of the explanatory note:

4.1. _____ .

4.2. _____ .

4.3. _____ .

4.4. Safety and environmental friendliness of the project.

4.5. Organizational and Economic Section.

4.6. Other sections of the project _____

5. List of graphic material (with exact indication of mandatory drawings)

The date of issue of the task _____

Project manager

(signature) *I.O. Familia*

Consultants for:

software section

(signature) *I.O. Surname*

section of technical support

(signature) *I.O. Surname*

The task was accepted for execution by _____

(signature) *I.O. Familia*

Appendix B
Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Educational
Institution of higher education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

Institute of Advanced Engineering
Department of Digital, Robotic Systems and Electronics
Area of study 11.03.02 "Infocommunication Technologies and Communication Systems"
Profile "Intelligent Data Processing in Infocommunication Systems and Networks"

"APPROVED BY"

Acting Director of Digital,
Robotic systems and
electronics

_____ I.V. Azarov

(signature)

" ____ " _____ 2026

ASSIGNMENT FOR THE FINAL QUALIFICATION WORK
(DIPLOMA WORK)

Student _____ *Last Name First Name Patronymic* _____ Group *ITS-b-*
oz-23-1

1. Theme *Development of a multiplexer with combinatorial aggregation*
digital streams

APPROVED BY the Institute's Order of _____ No _____

2. The deadline for submitting the work for defense " ____ " _____ 2026.

3. Initial data for the study *Materials obtained during the passage*

pre-diploma practice at the enterprise, the charter of the enterprise and recommendations of
personnel

Enterprises

4. The content of the thesis:

- 4.1. _____ .
4.2. _____ .
4.3. _____ .
4.4. _____ .
4.5. Other sections of the thesis _____ .

Annex _____

Assignment Issue Date _____

Supervisor

I.O. Familia
(signature)

Consultants for:
software section

I.O. Surname
(signature)

section of technical support
(signature)

I.O. Surname

The task was accepted for execution

by I. O. Familia
(signature)

Appendix B
Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Educational
Institution of higher education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

Institute of Advanced Engineering
Department of Digital, Robotic Systems and Electronics
Area of study 11.03.02 "Infocommunication Technologies and Communication Systems"
Profile "Intelligent Data Processing in Infocommunication Systems and Networks"

SCHEDULE

Last name, first name, patronymic (in full) Surname First Name Patronymic
Thesis topic Development of a multiplexer with combinatorial aggregation
digital streams

Head Cand. Tech. Sci., Associate Professor Surname Name Patronymic
Consultants Cand. Tech. Sci., Associate Professor Surname Name Patronymic
Cand. Tech. Sci., Associate Professor Surname Name Patronymic

№	Naming the stages of implementation Graduation Qualification Work	Deadline	Note
1	Assignment of the task.		
2	Start of design. Analysis of initial data and problem statement.		
3	Development of the structure of the thesis.		
4	Section 1. Analysis of the state of the problem to be solved.		
5	Section 2. Substantiation of ways to solve the problem.		
6	Section 3. Verification and confirmation of the scientific provisions of the study.		
7	Preparation of an explanatory note.		
8	Preliminary defense of the work.		
9	Peer review.		
10	Consulting and Regulatory Control		
11	Receiving feedback from the manager		
12	Submission of a thesis to the State Examination Commission		

Head of _____ *I.O. Familia*
(signature)

Acting Director of the DCRS&E _____ *I.V. Azarov*
(signature)

« ____ » _____ 2026

Appendix D
Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Educational
Institution of higher education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

Institute of Advanced Engineering
Department of Digital, Robotic Systems and Electronics

APPROVED BY the Order of the Institute
of _____ № _____
Completed at the request of the organization
(enterprises) _____
fessor _____

Admitted to defense
" ____ " _____ 2026
Acting Director of the DCRS&E
Candidate of Economic Sciences, Associate Pro-
fessor _____ Azarov I.V.,
(signed by the head of the department)

GRADUATION QUALIFICATION WORK
Development of a multiplexer with combinatorial aggregation
digital streams

Reviewer:
Surname First Name Patronymic

degree, rank, position

Compliance controller:
Yakovlev Sergey Vladimirovich

Cand. Tech. Sci., Associate Professor,
Associate Professor at the School of Digital,
Robotic Systems and Electronics

(signature)

Date of defense

" ____ " _____ 2026

Evaluation

Performed by:
Surname First Name Patronymic

5th year student, group ITS-b-z-23-1
Areas of training
11.03.02 "Infocommunication
Communication technologies and systems»

Profile
"Intelligent Data Processing in Infocommuni-
cation Systems and Networks"

Full-time and part-time education

(signature)

Supervisor:
Surname First Name Patronymic

Cand. Tech. Sci., Associate Professor,
Associate Professor at the School of Digital,
Robotic Systems and Electronics

(signature)

Stavropol, 2026

Appendix D

Examples of bibliographic references

Books

One author

— Semenov V. V. Zashchita okruzhayushchey sredy [Environmental protection]. Assessment of the spread of polluting impurities in the water environment. Textbook. St. Petersburg: Polytechnic Publishing House. University, 2006. 88 p.

Two, three authors

— Semenov V. V. Zashchita okruzhayushchey sredy [Protection of the environment]. Assessment of the distribution of impurities in the water environment. Textbook / V. V. Semenov, T. A. Gavrikova, V. A. Zykov. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 88 p.

Four or more authors

— Environmental Protection. Assessment of the Distribution of Polluting Impurities in the Water Environment. Textbook / V. V. Semenov [i dr.]. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 88 p.

Edited by

— Environmental Protection. Assessment of the Distribution of Polluting Impurities in the Water Environment. Textbook / V. V. Semenov [i dr.]; ed. by S. V. Belov. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 88 p.

Second and subsequent editions

— Environmental Protection. Assessment of the Distribution of Impurities in Water: Textbook. Textbook / V. V. Semenov [i dr.] ; ed. by S. V. Belov. – 2nd ed., revised and supplemented – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 88 p.

Serial book edition

— Environmental Protection. Assessment of Impurities: Textbook. Textbook / V. V. Semenov [i dr.] ; ed. by S. V. Belov. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 88 p. – (Ecology at the Polytechnic University).

Translated edition

— Perrone P. D. Zashchita okruzhayushchey sredy [Environmental protection]. Assessment of the spread of polluting impurities in the water environment. Textbook: [transl. from English] / P. D. Perrone. – St. Petersburg. : Polytechnic Publishing House, University, 2006. – 88 p.

Suggestions for Teaching

— Environmental Protection. Assessment of the Distribution of Polluting Impurities in the Water Environment: Method, Instruction. V. V. Semenov. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – 48 p.

Component of the publication

— Semenov V. V. Zashchita okruzhayushchikh sredy [Environmental protection]. Assessment of the spread of polluting impurities in the aquatic environment / V. V. Semenov // Ecobaltika-96: sb. nauch. tr. – St. Petersburg. : Polytechnic Publishing House. University, 2006. – P. 104 – 110.

One author, several places of publication

— Semenov V. V. Zashchita okruzhayushchey sredy [Environmental protection]. Assessment of the distribution of polluting impurities in the aquatic environment: textbook / V. V. Semenov. – M. ; St. Petersburg. : Nauka, 2006. – 388 p.

One author, several publishers

— Semenov V. V. Zashchita okruzhayushchey sredy [Environmental protection]. Assessment of the spread of polluting impurities in the aquatic environment: textbook / V. V. Semenov. – St. Petersburg. : Nauka : Polytechnic Publishing House. University, 2006. – 388 p.

Multi-volume editions

— Gippius Z. N. Sochineniya : v 2 t. / Z. N. Gippius. – St. Petersburg. : Nauka, 2006. – 388 p. – (Golden Prose of the Silver Age).

— Gippius Z. N. Sochineniya [Works]. In 2 vols. Vol. 1. Poems / 3. N. Gippius. — St. Petersburg. : Nauka, 2006. — 388 p. — (Golden Prose of the Silver Age).

Standards, Patent Documents

- System of Labor Safety Standards: Collection. Moscow, Standards Publ., 2006. 124 p.
- Pat. 3472091 Russian Federation, MKP7 N 04 V 1/38, N 04 J 13/00. Transceiver Device / Petrov V. V. ; Applicant and Patent Holder Voronezh, Scientific Researcher. Institute of Communications. — № 7609326578/09 ; declared. 18.12.02 ; publ. 20.01.03, Bul. № 23. — 3 p.
- A. s. 7523096 USSR, MKIZ V 24 J 15/00. Device for capturing shaft parts / V. V. Petrov (USSR). — № 5549871/25-08 ; declared. 23.11.81 ; publ. 30.03.83, Bul. № 12.

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- Environmental protection. Assessment of the spread of polluting impurities in the aquatic environment / V. V. Semenov; Institute of Urban Economics. — M., 2002. — 110 p. — Dep. in VINITI 13.06.02, No 145432.

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- Prospects for the Development of Press Statistics of the Russian Federation: Report on Research (Conclusion) / Ros. Book. Chamber; Hand. Popov V. A. — M., 2007. — No GR 01840051145. — Inv. № 756600.

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Components of documents

Article from the book

- Semenov V. V. Zashchita okruzhayushchikh sredy [Environmental protection]. Assessment of the spread of polluting impurities in the water environment / V. V. Semenov // Okruzhayushchey sreda: sb. nauch. tr. — St. Petersburg. : Polytechnic Publishing House. University, 2006. — 88 p.

An article from a serial publication

- Semenov V. V. Zashchita okruzhayushchey sredy [Protection of the environment]. Assessment of the spread of polluting impurities in the aquatic environment / V. V. Semenov // Regional ecology. — 2006. — No 4, iss. 5.

Legislative materials, rules

- Russian Federation. Constitution (1993). — Moscow: Ob, 2001. — 39 p.
- Rules for the safe operation of lifts: PB 10-256-98. — St. Petersburg. : DEAN, 2001.

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- Slovar' angliyskogo yazyka [Elektronnyi resurs]: — Elektr. dan. i progr. — Maccelesfield (UK): Europa House, [1999]. — CD-ROM. — Contains: The Great Oxford Dictionary. — (source on the disk).
- Oxford encyclopedia [Electronic resource]. — Electron. dan. and prog. — The Learning Company, 1997. — CD-ROM — (source on the disc).
- Electronic catalogue of the GPNTB of Russia [Electronic resource]: the database contains information about all types of literature entering the fund of the GPNTL of Russia. — Moscow: <http://gpntb.ru/win/search/help/el-cat.html>. — (resource of remote access).
- Russian State Library [Elektronnyi resurs] / Tsentr inform. tekhnologii RSL; ed. Vlasenko T. V.; Web-master Kozlova N. V. — Electron. dan. — M. : Ros. Gos. B-ka, 1997: <http://www/rsl.ru> — (resource of remote access).