

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution
higher education
NORTH CAUCASIAN FEDERAL UNIVERSITY

I APPROVE

Dean of the Faculty of Mathematics
and computer science named after
Professor N.I. Chervyakov, candidate
physical and mathematical sciences, associate professor
Grobova T.A.

**ASSESSMENT TOOLS FUND
for educational practice**

Operational Practice / Эксплуатационная практика

Direction of training	02.0 4 .01 Mathematics and Computer Science
Directionality (profile)	Training Program for Electronic Information
Year of commencement of studies	2026
Form of study	full-time
Implemented in the 3rd semester	

Introduction

1. Purpose: conducting ongoing monitoring of academic performance and midterm assessment for the educational practice "Operational Practice / Эксплуатационная практика"
2. FOS is an appendix to the program for educational practice "Operational Practice / Эксплуатационная практика"
3. Developer: Head of the Department of Computational Mathematics and Cybernetics M. G. Babenko
4. An examination of the FOS was carried out.
Members of the expert group:
Chairman
Babenko M. G., Head of the Department of Computational Mathematics and Cybernetics
Members of the commission:
Peleshenko V.S., Associate Professor of the Department of Computational Mathematics and Cybernetics
Peleshenko T. A., Associate Professor of the Department of Computational Mathematics and Cybernetics

Expert opinion: the fund of assessment tools corresponds to the educational program in the field of training 02.04.01 Mathematics and computer science, focus (profile) «Training Program for Electronic Information» and is recommended for conducting ongoing monitoring of students' academic performance and midterm assessment.

5. The validity period of the FOS is determined by the period of implementation of the educational program.

1. Description of the criteria for assessing competence at various stages of its development, description of assessment scales

Competence (ii), indicator (s)	Levels of development competence (s),			
	The minimum level has not been reached (Unsatisfactory) 2 points	Minimum level (satisfactorily) 3 points	Intermediate level (Fine) 4 points	High level (excellent) 5 points
<i>Competence: UK-4 Able to apply modern communication technologies, including in foreign language(s), for academic and professional interaction</i>				
Results training in the discipline (module): ID-1 UK-4 Forms and defends one's own opinions and scientific positions, including in foreign language(s)	The judgments are unclear and there is no logical sequence. The argumentation is weak or absent, and the conclusions are not supported by evidence. Unable to defend his point of view; arguments are superficial or incorrect. Significant errors in presentation, does not know the relevant terminology. Does not actively participate in discussions or is unable to respond to objections with reason. The work does not meet academic standards and contains serious logical and stylistic errors.	The wording is unclear in places and logical inconsistencies are possible. The argumentation is weak and there is a lack of references or substantiated evidence. Defending a position is difficult, the arguments are superficial or incomplete. Foreign language is used with errors, and there may be difficulties in expressing complex scientific ideas. Participates in discussions, but does not always take counterarguments into account or respond to them correctly. The work was completed with deviations from scientific standards; there may be errors in the formatting.	The judgments are logical, but there may be minor inaccuracies or stylistic excesses. The arguments are compelling, but some points could be supported by stronger evidence. Able to defend his position, but may allow minor flaws in the logic of reasoning. Presents a scientific position in a foreign language with minor errors and uses specialized vocabulary. Takes part in discussions, but does not always fully analyze the opponents' arguments. The works meet academic standards, but minor stylistic flaws are possible.	Own positions and conclusions are formulated clearly, logically, and reasonably. Evidence is presented, references to authoritative sources are made, and scientific theories and concepts are used correctly. Confidently defends his point of view, relying on logic, facts and scientific arguments. Freely expresses and defends his scientific positions in a foreign language, using specialized vocabulary. Effectively conducts scientific debates, knows how to take into account alternative points of view and

				oppose them with arguments. Presentations and written works are prepared in accordance with academic standards.
Results training in the discipline (module): ID-2 UK-4 Uses Russian and foreign languages as a means of business communication, clearly and distinctly presents problems and solutions, and justifies conclusions	The presentation is incoherent, the logic of the text is broken, and the material is difficult to perceive. A significant number of errors makes the text difficult to understand. Lack of argumentation or use of unsupported, weak arguments. Business communication norms are violated; stylistic and communication errors are possible. Unable to adapt communication style to business situations and experiences significant communication difficulties. Unable to use a foreign language in business communication, makes serious mistakes that interfere with understanding.	The presentation is not structured enough; there may be logical gaps or redundancy of information. Grammatical, spelling and punctuation errors that affect the perception of the text are allowed. The arguments presented are poorly supported by facts, and the conclusions are not convincing enough. Template phrases are used, mistakes in business communication style are made. Has difficulty adapting speech to different formats of business communication. Limited use of foreign language, errors in vocabulary and grammar leading to misunderstandings.	The presentation is coherent and clear, but there may be minor logical or stylistic flaws. Generally fluent in Russian and foreign languages, with occasional mistakes that do not affect understanding. Quite a compelling argument, but in some places there may be weak justification or a lack of evidence. In general, business communication standards are observed, but there may be minor violations of etiquette or style. Can adapt communication style, but sometimes has difficulty choosing the appropriate form of interaction. Uses a foreign language in business communication, but may have minor errors or lack confidence.	The material is presented clearly, consistently and logically, and there are no semantic or stylistic errors. High level of proficiency in Russian and foreign languages, correct use of business vocabulary, absence of spelling, punctuation and grammatical errors. The conclusions are reasoned, supported by evidence, and use critical analysis of information. Business communication standards are observed, and professional terminology is used correctly and appropriately. Able to

				adapt communication style depending on the situation (official negotiations, business correspondence, presentations, discussions). Freely uses a foreign language in business communication and argues his position without difficulty.
<i>Competency: PC-5 Able to present and adapt mathematical knowledge, programming methods, and information technology in various ways, taking into account the level of the audience</i>				
Results training in the discipline (module): ID-1 _{PC-5} Assesses the level of preparation of listeners during their public speeches	Does not assess the audience's level of preparation before and during the presentation. The presentation of the material does not take into account the differences in the preparation of the listeners, which leads to difficulties in understanding. Does not use feedback or ignores audience questions. Does not adjust the presentation of material depending on the audience's reaction. The presentations are ineffective, and the audience does not absorb the material because its complexity does not correspond to their level of preparation.	Partially assesses the audience's level of preparation, but does so intuitively, without using objective methods. Limited variation in presentation of material depending on the level of the audience, which can lead to misunderstanding or oversimplification of complex topics. Uses feedback, but does not always take it into account when further developing presentations. Able to interact with an audience, but sometimes has difficulty adapting explanations.	Analyzes the audience's level of preparation, but may not always take into account all factors (different levels of knowledge among listeners, specifics of the topic). Uses standard assessment methods (questions, discussions), but less frequently uses interactive or adaptive approaches. Corrects the presentation of the material, but sometimes does not respond quickly enough to the difficulties in understanding of the listeners. Receives feedback from the audience and takes it into account when preparing subsequent	Confidently analyzes the audience's level of preparation before and during a presentation, adapting the presentation of material depending on the audience's knowledge and experience. Uses various assessment methods (surveys, testing, discussions, analysis of questions from the audience and feedback). Flexible adjustment of the pace and complexity of the material,

			speeches. Knows how to interact with the audience, but may not always respond effectively to their needs.	ensuring its accessibility for all categories of listeners. Able to effectively interact with audiences, explaining complex topics in understandable language. Draws conclusions from the results of assessing the level of preparation of listeners and uses them to improve future presentations. Uses interactive methods (cases, dialogues, discussions) to more accurately determine the audience's level of knowledge.
Results training in the discipline (module): ID-2 PC-5 Adapts the presentation of mathematical knowledge and programming methods to the level of the students	Does not adapt the presentation of the material to the level of the audience, which leads to its misunderstanding. Uses overly complex or, conversely, simplified explanations that do not correspond to the level of the listeners. Does not assess the audience's level of preparation and does not adjust the presentation of the material depending on the audience's reaction. Ignores feedback and does not analyze the effectiveness of the information presented.	Assesses the level of students formally, without a deep analysis of their knowledge and needs. Partially adapts the material, but does not always make it understandable for all listeners. Limited to basic explanation methods, without the use of additional visual and interactive tools. The balance between theory and practice can be disrupted, making it difficult to learn the material.	Assesses the level of preparation of the audience and adapts the presentation of the material, but may not always take into account differences in the level of knowledge within the group. Uses a variety of teaching methods, but may limit itself to standard examples and exercises. It balances theory and practice fairly	Confidently determines the audience's level of preparation and flexibly adapts the presentation of material, making it accessible and understandable. Uses a variety of teaching methods, including

	The presentation of the material is formal, with no effort to make it accessible and understandable.	Feedback from listeners is not always analyzed and taken into account in future performances.	well, but may not always take into account the needs of a specific audience. Able to explain complex topics clearly, but in some cases requires additional preparation or clarification. Uses feedback to improve delivery, but does not always make significant adjustments.	visualization, real-world examples, analogies, and interactive elements. Finds the optimal balance between theory and practice, helping students effectively absorb the material. Able to explain complex mathematical concepts and programming methods in a variety of ways, tailored to the audience. Demonstrates a high level of proficiency in mathematical knowledge and programming methods, supporting theory with practical problems. Prepares educational materials of varying levels of difficulty, allowing the audience to gradually deepen their knowledge.
--	---	--	--	--

Competency assessment criteria *

The grade “ **excellent** ” is given to a student if
Own positions and conclusions are formulated clearly, logically, and reasonably.

Evidence is presented, references are made to authoritative sources, and scientific theories and concepts are used correctly. Confidently defends their point of view, relying on logic, facts, and scientific arguments. Fluently expresses and defends their scientific positions in a foreign language, using relevant vocabulary. Effectively conducts academic debates, and is able to consider alternative points of view and present arguments in response. Presentations and written work are formatted in accordance with academic standards. The material is presented clearly, consistently, and logically, without semantic or stylistic errors. High proficiency in Russian and foreign languages, with correct use of business vocabulary and the absence of spelling, punctuation, and grammatical errors. Conclusions are reasoned, supported by evidence, and employ critical analysis of information. Business communication standards are observed, and professional terminology is used correctly and appropriately. Able to adapt communication style depending on the situation (formal negotiations, business correspondence, presentations, discussions). Fluently uses a foreign language in business communication and easily argues their position. Confidently analyzes the audience's level of preparation before and during a presentation, adapting the presentation based on their knowledge and experience. Uses various assessment methods (surveys, testing, discussions, analysis of questions from the audience and feedback). Flexibly adjusts the pace and complexity of the material, ensuring its accessibility for all audience categories. Effectively interacts with the audience, explaining complex topics in understandable language. Draws conclusions from the results of audience assessments and uses these findings to improve future presentations. Uses interactive methods (case studies, dialogues, discussions) to more accurately assess the audience's level of knowledge. Confidently assesses the audience's level of preparation and flexibly adapts the presentation of the material, making it accessible and understandable. Uses a variety of teaching methods, including visualization, real-world examples, analogies, and interactive elements. Finds the optimal balance between theory and practice, helping audiences effectively absorb the material. Able to explain complex mathematical concepts and programming methods in a variety of ways, adapting to the needs of the audience. Demonstrates a high level of mathematical knowledge and programming methods, reinforcing theory with practical tasks. Prepares educational materials of varying difficulty levels, allowing the audience to gradually deepen their knowledge. Demonstrates deep knowledge of mathematics and information sciences, confidently explains complex topics, taking into account the students' level of preparation. Uses modern teaching methods, interactive technologies, and adaptive learning approaches. Skilled in structuring courses, selecting the appropriate amount of theoretical material and practical assignments for different levels of education (school, secondary vocational, higher education). Actively uses visual aids, illustrative examples, software tools, and digital resources to enhance learning. Flexible adapts teaching style and material complexity to the audience, making learning understandable and accessible. Receives positive feedback on her teaching methods from students and colleagues. Continuously improves her teaching skills by studying new educational technologies and trends. Confidently develops continuing education courses tailored to the needs of the target audience, current educational trends, and labor market demands. Creates a clear course structure, logically distributing theoretical and practical material. Utilizes modern teaching technologies, digital tools, and interactive teaching methods. Creates high-quality teaching materials, including lectures, practical assignments, tests, and quizzes. Flexibly adapts courses to the students' skill level, offering individual or group learning paths. Successfully implements courses, receives positive feedback from students, analyzes feedback, and implements improvements. Experienced in implementing innovative educational approaches and continuously improves courses. Deeply understands the specifics of the subject area and is able to adapt the learning process to its specifics. Utilizes modern teaching methods (differentiated learning, problem-based learning, case studies, etc.) to effectively deliver material. Makes timely adjustments to course content, taking into account changes in the scientific field, educational standards, and student needs. She flexibly adapts curricula and programs, balancing theory and practical skills. She utilizes digital technologies and innovative methods to enhance teaching quality. She develops original teaching

materials that take into account the specifics of the subject and the students' level of preparation. She has in-depth knowledge of information technology and is able to present material clearly and structured. She uses modern teaching methods: gamification, problem-based learning, case studies, and flipped. The classroom is able to adapt the presentation of material to the student's level of preparation, creating accessible and understandable explanations of complex topics. Utilizes digital platforms, interactive environments, and tools (LMS, virtual labs, cloud services, software simulators). The activity plan is fully developed and includes all necessary components (goals, objectives, content, methods, assessment criteria, and expected results). The work plan is well-thought-out and aligns with modern educational standards. Current trends in information technology and continuing education are taken into account.

" **good** " grade is awarded to a student whose judgments are logical, but may contain minor inaccuracies or stylistic excesses. The argumentation is convincing, but individual points could be supported by more compelling evidence. The student is able to defend their position, but may allow minor flaws in the logic of their reasoning. Presents a scientific position in a foreign language with minor errors, using specialized vocabulary. Participates in discussions, but does not always fully analyze the opponents' arguments. Work meets academic standards, but minor stylistic flaws are possible. The presentation is consistent and clear, but may contain minor logical or stylistic flaws. Generally competent in Russian and the foreign language; occasional errors are allowed that do not affect comprehension. Reasonably compelling argumentation, but in some places weak justifications or a lack of evidence may be present. Generally, business communication standards are observed, but minor violations of etiquette or style are possible. Can adapt communication styles, but sometimes has difficulty choosing the appropriate form of interaction. Uses a foreign language in business communication, but may make minor mistakes or lack confidence. Analyzes the audience's level of preparation, but may not always take all factors into account (variable levels of knowledge among listeners, the specifics of the topic). Uses standard assessment methods (questions, discussions), but less often uses interactive or adaptive approaches. Adjusts the presentation of material, but sometimes does not respond quickly enough to the audience's comprehension difficulties. Receives feedback from the audience and takes it into account when preparing subsequent presentations. Knows how to interact with the audience, but may not always respond effectively to their needs. Assesses the level of preparation of listeners and adapts the presentation of material, but may not always take into account differences in knowledge levels within the group. Uses a variety of teaching methods, but may limit themselves to standard examples and exercises. Balances theory and practice reasonably well, but may not always be able to. Consider the needs of a specific audience. Able to explain complex topics clearly, but in some cases requires additional preparation or clarification. Uses feedback to improve the presentation of material, but does not always make significant adjustments. Has a strong knowledge of mathematics and information science subjects and is able to explain material clearly. Uses a variety of teaching methods, but may not always actively incorporate innovative technologies. Adapts course content to the level of the audience, but sometimes struggles with balancing the complexity of the material. Uses visual examples and practical tasks, but may not always take into account the individual needs of students. Develops courses based on the level of students, but may not always thoroughly analyze their needs. The course structure is generally logical, but minor imbalances between theory and practice are possible. Utilizes modern teaching methods, but uses a limited set of digital tools or interactive technologies. The course materials are informative, but may require minor revisions in terms of delivery. Delivers the course effectively, receives generally positive feedback, but requires additional adjustments. Occasionally makes changes to the course, but does not always respond quickly to changes in the educational environment. Possesses pedagogical knowledge and is generally able to adapt the course to the specifics of the subject area. Uses various teaching methods, but does not always employ innovative approaches. Makes changes to the course when necessary, but may do so unsystematically or with a delay. Adjusts

the learning process based on feedback, but does not always fully analyze it. Uses digital technologies, but their use may be limited. Confident in information science subjects, but may limit themselves to standard teaching methods. Uses practical examples and assignments, but their complexity does not always correspond to the level of students. Integrates digital technologies into the learning process, but not fully. The activity plan is developed and includes all the main components, but some sections contain minor shortcomings or require clarification. The plan meets key educational standards, but could be improved in terms of the relevance of content and methods. A general approach to students is used, but there are no clearly defined methods for personalization or differentiation.

"satisfactory" grade is awarded to a student if the wording is unclear in places, and logical inconsistencies are possible. The argumentation is weak, lacking references or substantiated evidence. Defending a position is difficult, and the arguments are superficial or incomplete. Foreign language is used with errors, and there may be difficulties expressing complex scientific ideas. Participates in discussions, but does not always consider counterarguments or respond to them correctly. The work deviates from scientific standards, and there may be errors in formatting. The presentation is insufficiently structured, with logical gaps or redundancy possible. Grammatical, spelling, and punctuation errors are allowed, affecting the perception of the text. The arguments presented are poorly supported by facts, and the conclusions are not convincing enough. The use of clichés and errors in business communication style are allowed. Experiences difficulty adapting speech to different business communication formats. Limited use of foreign language, including vocabulary and grammar errors that lead to misunderstandings. Partially assesses the audience's level of preparation, but does so intuitively, without the use of objective methods. Makes limited adjustments to the presentation of material based on the audience's level, which can lead to misunderstandings or the simplification of complex topics. Uses feedback, but does not always incorporate it into the presentation. Able to interact with the audience, but sometimes struggles to adapt explanations. Assesses the audience's level formally, without a thorough analysis of their knowledge and needs. Partially adapts material, but does not always make it understandable for all audiences. Limits explanations to basic methods, without the use of additional visual and interactive tools. The balance between theory and practice may be disrupted, complicating the assimilation of the material. Feedback from audiences is not always analyzed and incorporated into future presentations.

Possesses basic knowledge of mathematics and information science, but may struggle to explain complex topics. Uses traditional teaching methods, rarely incorporating modern and interactive technologies. Adaptation of materials to different educational levels is perfunctory and requires further development. Interaction with students is limited, and maintaining their attention and motivation may be difficult. Rarely engages in self-development in pedagogy and modern educational technologies. Develops courses formally, and the structure may be unbalanced. Fails to consider the varying levels of student preparation, which may reduce the effectiveness of training. Uses traditional teaching methods, rarely incorporating interactive elements and digital technologies. Educational materials contain basic information, but may be insufficiently developed or updated. Course implementation proceeds without significant problems, but student feedback indicates the need for significant improvement. Rarely makes changes to the course and does not always keep up with new educational trends. Limited use of pedagogical knowledge to adapt the course, making adjustments sporadically.

Uses standard teaching methods, rarely adapting them to changes in the subject area. Poorly analyzes student feedback and rarely uses it to adjust the course. Updates course materials irregularly and may miss relevant developments in the field. Uses digital technologies minimally and does not employ interactive teaching methods.

Has basic knowledge of information science, but cannot always explain complex topics clearly. Uses traditional teaching methods, rarely incorporating interactive approaches and digital tools. Uses a limited number of practical assignments, which reduces learning. The activity plan is incomplete and may be missing important elements (e.g., assessment criteria or methods). The

plan meets basic requirements, but some parts are underdeveloped or insufficiently developed. Outdated or standard methods are used, without regard for modern educational trends. The plan is insufficiently detailed, course goals and objectives are not clearly described, and the context of the educational process is not considered.

A grade of " unsatisfactory " is given to a student if: The student's judgments are unclear and lack logical consistency. The argumentation is weak or absent, and the conclusions are not supported by evidence. The student is unable to defend their point of view; their arguments are superficial or incorrect. Significant errors in presentation and lack of command of relevant terminology. The student does not actively participate in discussions or is unable to respond to objections with reasoning. The work does not meet academic standards and contains serious logical and stylistic errors. The presentation is incoherent, the text is logically structured, and the material is difficult to understand. A significant number of errors make the text difficult to understand. Lack of argumentation or the use of unsupported, weak arguments. Business communication standards are violated, and stylistic and communicative errors are possible. The student cannot adapt their communication style to business situations and experiences significant communication difficulties. Unable to use a foreign language in business communication and makes serious errors that interfere with understanding.

2. Assessment tools for educational practice Operational Practice / Эксплуатационная практика

2.1.Tasks to assess knowledge gained in practice

Developed competencies, indicators		Formulation of the task
Competency code	Formulation	
UK-4	Able to apply modern communication technologies, including in foreign language(s), for academic and professional interaction	Conduct a study using mathematical and computer modeling methods in a given area to solve a corresponding applied problem (development of a mathematical model and evaluation of its effectiveness)
PC-5	Able to present and adapt mathematical knowledge, programming methods and information technology in various ways, taking into account the level of the audience	Develop proposals and recommendations for the use of acquired knowledge in the field of mathematics and computer science in practice. Conduct research and monitoring in the field of planning pedagogical activities within the framework of mathematics directions Develop proposals and recommendations for the practical use of the results obtained during the final qualifying work.

2.2.Tasks that allow you to assess the skills and abilities acquired in practice

Developed competencies, indicators		Formulation of the task
Competency code	Formulation	
UK-4	Able to apply modern communication technologies, including in foreign language(s), for academic and professional interaction	Conduct a study using mathematical and computer modeling methods in a given area to solve a relevant applied problem (develop a mathematical model and evaluate its effectiveness)
PC-5	Able to present and adapt mathematical knowledge, programming methods and information technology in various ways, taking into account the level of the audience	Develop proposals and recommendations for the use of acquired knowledge in the field of mathematics and computer science in practice. Conduct research and monitoring in the field of planning pedagogical activities within the framework of mathematics directions Develop proposals and recommendations for the practical use of the results obtained during the final qualifying work.

3. Methodological materials defining the knowledge assessment procedures, skills, abilities and (or) experience of activities characterizing the stages of formation competencies

The procedure for completing the educational practice "Operational Practice / Эксплуатационная практика" includes yourself the following stages:

- preparatory;
- functional-activity-based;
- final.

At each stage of the internship, ongoing monitoring of competency development is carried out. The tasks offered to the student allow them to test their competencies: UK-4, PC-5.

The assignments require mastery of competencies at different levels: basic and advanced . At the basic level, students are expected to use known methods and technologies to solve production problems, while at the advanced level, a heuristic approach to solving assigned production tasks is added.

When checking assignments, the following are assessed:

- consistency and rationality of task execution;
- quantity and quality of studies conducted;
- independent contribution to the range of issues studied.

When checking reports, the following are assessed:

- correctness of design;
- quality of the results presented;
- the quality of the presented graphic and tabular material.

When defending a report, the following are assessed:

- the student's proficiency in the material being presented;
- independence of judgment;
- the ability to make informed conclusions.