

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

I APPROVE

Dean Faculty of Mathematics and Computer Science
named after Professor N. I. Chervyakov , Candidate of
Physical and Mathematical Sciences, Associate
Professor

_____ T.A. Grobova

**EDUCATIONAL AND METHODOLOGICAL COMPLEX
STATE FINAL CERTIFICATION**

Direction of training
Directionality (profile)
Graduate qualifications
Form of study
Year of commencement of studies

02.04.01 Mathematics and Computer Science
Training Program for Electronic Information
Master's degree
Full-time
2026

AGREED:

Head of the Department of the branch of the
Federal State Unitary Enterprise "Main
Radio Frequency Center" in the Southern
and North Caucasian Federal Districts
Kornienko S. A .

DEVELOPED BY:

Head of the Department of Computational
Mathematics and Cybernetics

Babenko M.G.
" ____ " _____ 2026

Reviewed by the faculty's teaching and
methodological kit
Protocol No. ____ dated _____ 2026

Stavropol, 2026

1. Composition of the state final certification

In accordance with the educational standard for the field of study 02.04.01 Mathematics and Computer Science and the educational program for the specialty approved by the Academic Council of the North Caucasus Federal University (NCFU), the state final certification includes:

- preparation for and passing the state exam;
- completion and defense of the final qualifying work.

2. The State Final Attestation (GFA) program is designed in accordance with the requirements of:

- educational standard for the field of study 02.04.01 Mathematics and Computer Science, approved by order of the Ministry of Science and Higher Education of the Russian Federation dated August 17, 2015 No. 829;

- educational program of higher education in the field of training 02.04.01 Mathematics and computer science, approved by the Academic Council of the North Caucasus Federal University (NCFU);

- provisions on the educational and methodological support of higher education programs at the Federal State Autonomous Educational Institution of Higher Education " North Caucasus Federal University".

- provisions on the procedure for conducting state final certification for higher education programs - bachelor's degree programs , specialist's degree programs and master's degree programs at the Federal State Autonomous Educational Institution of Higher Education " North Caucasus Federal University" approved by the Academic Council of NCFU (minutes No. 4 dated 12/07/2017, minutes No. 7 dated 12/27/2018);

- regulations on the procedure for completing final qualifying works at the Federal State Autonomous Educational Institution of Higher Education " North Caucasus Federal University" approved by the Academic Council of NCFU (minutes No. 7 dated January 30, 2018);

3. Competencies that a student must master as a result of completing a higher education program

Competency code	Formulation
UK – (No.)	<u>Universal competencies</u>
UK-1	Able to carry out a critical analysis of problematic situations based on a systems approach and develop an action strategy
UK-2	Capable of managing a project at all stages of its life cycle
UK-3	Able to organize and manage the work of a team, developing a team strategy to achieve the set goal
UK-4	Able to apply modern communication technologies, including in foreign language(s), for academic and professional interaction
UK-5	Able to analyze and take into account cultural diversity in the process of intercultural interaction
UK-6	Able to identify and implement priorities for one's own activities and ways to improve them based on self-assessment
OPK-(No.)	<u>General professional competencies</u>
OPK-1	Able to find, formulate and solve current and significant problems in applied and computer mathematics
OPK-2	Able to create and explore new mathematical models in the natural sciences, improve and develop concepts, theories and methods
OPK-3	Capable of independently creating application software based on modern information technologies and network resources, including domestically produced ones
PC-(No.)	<u>Professional competencies</u>

PC-1	Able to demonstrate fundamental knowledge of mathematics and natural sciences, programming and information technology
PC-2	Able to conduct scientific research based on existing methods in a specific area of professional activity
PC-3	Capable of conducting methodological and expert work in the field of mathematics and computer science
PC-4	Capable of conducting patent research, determining forms and methods of legal protection and defense of rights to the results of intellectual activity, and managing rights to them to solve problems in the field of development of science, engineering and technology
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
PC- 7	Able to create and explore new mathematical models in the natural sciences, industry and business, taking into account the capabilities of modern information technology, programming and computer equipment
PC- 6	Able to use modern methods of development and implementation of specific algorithms of mathematical models based on programming languages and application packages for modeling
PC- 8	Capable of participating in the management of projects for the creation of information systems and software systems at various stages of the life cycle
PC- 9	Able to take into account knowledge of the problems and trends in the development of the software market in professional activities