

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
FERENC RÁKÓCZI II TRANSCARPATHIAN HUNGARIAN UNIVERSITY**

Approved by the Academic Council

of the Ferenc Rákóczi II TransCarpathian
University
of Higher Education,
Protocol No. 2 of 30 March 2021

With amendments and additions
approved by the Academic Council,
Protocol No. 5 of 27 May 2026

Enacted by the Rector's Order
№62-ВН of 28 May 2026

Chair of the Academic Council _____ Csernicskó S.S.

**EDUCATIONAL AND PROFESSIONAL PROGRAM
“MATHEMATICS”**

LEVEL OF HIGHER EDUCATION:	Second
DEGREE:	Master
FIELD OF KNOWLEDGE:	A – Education
SPECIALTY:	A4 – Secondary Education
SUBJECT SPECIALIZATION:	A4.04 – Secondary Education (Mathematics)
QUALIFICATION:	Master of Education. Secondary education (Mathematics).

Berehove– 2026

APPROVAL SHEET

for the Educational and Professional Programme

“Mathematics”

1. Programme Guarantor:

STOIKA Myroslav, Candidate of Physical and Mathematical Sciences,

Associate Professor, Associate Professor of the Department of Mathematics and Informatics _____

2. Programme Developers:

STOIKA Myroslav, Candidate of Physical and Mathematical Sciences,

Associate Professor, Associate Professor of the Department of Mathematics and Informatics _____

KUCHINKA Katalin, Candidate of Physical and Mathematical Sciences,

Associate Professor, Associate Professor of the Department of Mathematics and Informatics _____

TYLYSCHAK Alexander, Doctor of Physical and Mathematical Sciences,

Associate Professor, Professor of the Department of Mathematics and Informatics _____

_____ 2026 p.

1. **Head of the Department of Mathematics and Informatics** _____ Myroslav STOIKA
_____ 2026.

2. **Head of the Student Contingent Office** _____ Zsuzsanna FIZESHI
_____ 2026.

3. **Head of the Quality Assurance Office of Higher Education** _____ Adalbert RAC
_____ 2026.

4. **Vice-Rector for Academic and Methodological Work** _____ Oleksandr BERGHAUER
_____ 2026.

5. **Vice-Rector for Research and Quality Assurance** _____ Imre SAKAL
_____ 2026.

6. **Rector** _____ István CSERNICKSKÓ
_____ 2026.

PREAMBLE

The Educational and Professional Program “Mathematics” has been developed in accordance with the Laws of Ukraine “On Education” and “On Higher Education”, the Resolution of the Cabinet of Ministers of Ukraine No. 1341 of November 23, 2011 (as amended by the Resolution of the Cabinet of Ministers of Ukraine No. 519 of June 25, 2020) “On Approval of the National Qualifications Framework”. The program is based on regulatory documents governing the development of components of the higher education standards system and regulating the implementation of educational activities in higher education institutions of Ukraine. It has been developed pursuant to the Order of the Ministry of Education and Science of Ukraine No. 512 of March 27, 2025, “On Approval of the Methodological Recommendations for the Development of Higher Education Standards”, the Regulations on the Development and Revision of Educational Programs, and the Resolution of the Cabinet of Ministers of Ukraine No. 266 of April 29, 2015, “On Approval of the List of Fields of Knowledge and Specialties for the Training of Applicants for Higher and Professional Pre-Higher Education” (as amended by Resolution No. 188 of February 21, 2025). To determine the professional activities of graduates of the second (Master’s) level of higher education in Subject Specialty A4.09 Secondary Education (Mathematics), the National Classifier of Ukraine DK 003:2010 “Classifier of Occupations” and the Annex to the Resolution of the Cabinet of Ministers of Ukraine No. 1341 of November 23, 2011 (as amended by Resolutions No. 509 of June 12, 2019, and No. 519 of June 25, 2020) were used. In the development of the educational program, particularly in defining general and special (professional) competencies and learning outcomes, consideration was given to the achievements of the European Union project “Tuning Educational Structures in Europe”, the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), the Order of the Ministry of Education and Science of Ukraine No. 1225 of August 29, 2024, “On Approval of the Professional Standard for the Profession ‘Teacher of a General Secondary Education Institution’”, the Professional Standard for the Profession “Teacher of a General Secondary Education Institution” approved by the same Order, as well as the draft Higher Education Standard for Specialty 014 Secondary Education (by Subject Specializations) at the second (Master’s) level of higher education, published for public discussion on March 20, 2023.

Approved and put into effect by the decision of the Academic Council of Ferenc Rákóczi II Transcarpathian Hungarian University on May 27, 2026 (Order No. 5). The Educational Program comes into force on May 28, 2026, pursuant to Rector’s Order No. 62 of May 28, 2026.

The EPP “Secondary Education (Mathematics)” was developed by the working group of the Department of Mathematics and Informatics at the higher-education institution Ferenc Rákóczi II Transcarpathian Hungarian University composed of:

1. Stoika M. – Candidate of Physical and Mathematical Sciences, Associate Professor of the Department of Mathematics and Informatics, Programme guarantor;
2. Kuchinka K. – Candidate of Physical and Mathematical Sciences, Associate Professor of the Department of Mathematics and Informatics;
3. Tylyschak A. – Doctor of Physical and Mathematical Sciences, Associate Professor of the Department of Mathematics and Informatics.

External stakeholders’ reviews:

1. *Slyvka-Tylaschak Hanna*, Doctor of Physical and Mathematical Sciences, Associate Professor, Head of the Department of Probability Theory and Mathematical Analysis UZHNU;
2. *Semion Serhii*, Deputy Head of the Department of Education and Culture of the Berehove City Council.
3. *Szilágyi Lajos*, Lecturer of Mathematics at the Vocational School of Ferenc Rakoczi II. Transcarpathian Hungarian University, Vice-President of the Transcarpathian Hungarian Pedagogical Association.

1. PROFILE OF THE EDUCATIONAL PROGRAM FOR THE SUBJECT SPECIALTY A4.04 “Secondary Education (Mathematics)”

1 -- General Information	
Full name of the higher education institution and structural unit	Ferenc Rákóczi II Transcarpathian Hungarian University, Department of Mathematics and Informatics
Name of the educational programme	Mathematics
Level of higher education	Second (Master's) level
Degree awarded	Master
Field of knowledge	A – Education
Specialty	A4 – Secondary Education
Subject specialty	A4.04 – Secondary Education (Mathematics)
Forms of study	Institutional (full-time, part-time)
Educational qualification	Master of Education. Secondary education (Mathematics).
Professional qualification	Master-Teacher (Secondary Education (Mathematics), Secondary Education (Computer Science))
Qualification to be stated in the diploma	Master of Education. Secondary education (Mathematics). Master-Teacher (Secondary Education (Mathematics), Secondary Education (Computer Science))
Type of diploma and scope of the programme	Master's Degree, 120 ECTS credits. Duration of study: 1 year and 10 months.
Cycle / level	National Qualifications Framework of Ukraine – Level 7. FQ-EHEA – Second cycle. EQF-LLL – Level 7.
International Standard Classification of Education (ISCED-F 2013)	0114. Teacher Training with Subject Specialisation The educational and professional programme is focused on the preparation of teachers of mathematics, with an emphasis on advanced teaching methodology, didactic strategies, formative assessment practices, and the enhancement of pedagogical competence. As the programme belongs to the field of teacher training with a subject specialisation, it is classified under ISCED-F 2013 code 0114. Classification and Positioning of the Educational Programme The educational programme is assigned to specialty A4 Secondary Education within the field of knowledge A Education, in accordance with the List of Fields of Knowledge and Specialties approved by the Resolution of the Cabinet of Ministers of Ukraine No. 266, as amended by Resolution No. 1021 of 30 August 2024. To ensure international comparability, transparency, and accurate identification of the educational content, the programme has been aligned with the detailed field of the International Standard Classification of Education: Fields of Education and Training 2013 (ISCED-F 2013) in accordance with the Methodological Recommendations approved by Order of the Ministry of Education and Science of Ukraine No. 1734 of 31 December 2025. The correspondence of the educational programme to the ISCED-F classification has been determined according to the principle of dominant content, taking into account the programme's objectives, intended learning outcomes, and the expected professional activities of its graduates. ISCED-F 2013 Code: 0114.

Entry requirements (Prerequisites)	Admission to the Master's degree programme is open to holders of a Bachelor's degree or a Master's/Specialist's degree. For applicants whose prior qualifications were obtained in a different specialty, the University develops an individual learning pathway and may require the completion of additional coursework to eliminate academic differences and ensure successful achievement of the programme learning outcomes..
Language(s) of instruction	Ukrainian, Hungarian. Certain professional educational components may be taught in English.
Accreditation status	Certificate of the National Agency for Higher Education Quality Assurance (NAQA) on the accreditation of the "Mathematics" Educational Program, ID code: 22112656. Valid until July 1, 2027.
Permanent link to the online description of the educational programme	https://kmf.uz.ua/uk/osvitni-programi/

2 -- Purpose of the Educational Programme

The objective of the Mathematics Educational Program is to train highly qualified specialists – specifically teachers of mathematics and informatics – who are capable of basing their professional activities on planning and a creative, innovative approach, as well as professionally fulfilling their duties within secondary educational institutions.

3 -- Characteristics of the Educational Programme

Subject area (field of knowledge, specialty, specialisation)	Field of Knowledge: A Education Specialty: A4 Secondary Education (by subject specialization) Subject specialty: A4.04 Secondary Education (Mathematics) Object of Study: The educational process in general secondary educational institutions in accordance with the subject specialization. Educational Objective: To develop the professional competencies of higher education students for teaching mathematics and informatics in educational institutions. Theoretical Content of the Subject Area: Secondary education, pedagogy, psychology, and the methodology of organizing modern educational processes in educational institutions; scientific concepts and principles of fundamental and applied sciences within the field sufficient for developing subject-specific competencies in mathematics and informatics; theoretical foundations of educational sciences, and methodologies for teaching mathematics and informatics in general secondary educational institutions. Methods, Methodology, and Technologies: General scientific methods of cognition and research activity, methods of the respective sciences, educational technologies and methodologies for developing mathematical competencies in general secondary educational institutions, monitoring of pedagogical activities, and information and communication technologies. Tools and Equipment: Modern information and communication equipment to support the educational process; library resources and technologies; and bases for pedagogical and professional internships (established through cooperation agreements).
Orientation of the	The Educational Program has an applied orientation and is based on well-

Educational Programme	established scientific results, taking into account the current state of secondary education, teacher training, mathematics, informatics, and their integration into other fields of knowledge and practical activities. The program focuses on scientific achievements and research in the mathematical sciences. The core focus of the Educational Program is teacher training, preparing students for teaching informatics and mathematics in general secondary educational institutions.
Main focus of the Programme and specialisation	Training within the field of A Education, encompassing mathematics, informatics, and the theory and practice of upbringing and instruction in secondary educational institutions.
Programme features	The fundamental objective of the Educational Program is to integrate pedagogical, informatics, and mathematical training into a unified, organic system. Throughout the program, students master educational technologies based on the latest advancements in pedagogical, informatics, and mathematical sciences. Key Professional Objectives Interdisciplinarity: Methodological development and practical implementation of interdisciplinary links between mathematics and informatics within the framework of specialized secondary schools (profile schools). Fundamental Approach: The instruction of pedagogical, informatics, and mathematical disciplines is characterized by scientific rigor, based on the continuous and close synergy between theoretical knowledge and practical training. Professional Competencies: The pedagogical, informatics, and mathematical components of the program enable graduates to work as mathematics teachers in general secondary educational institutions, including Hungarian-language secondary schools. Principles of Educational Organization The implementation of the program is based on the principles of student-centered learning and academic integrity. Within the framework of the Educational Program, several disciplines may be taught in English or other official languages of the European Union. To enhance language proficiency and the ability to process foreign-language literature, students are offered additional elective language courses free of charge.
4 -- Employability of graduates and suitability for further studies	
Employability of graduates	Employment Opportunities Graduates of the programme may be employed in educational institutions providing general secondary education. In accordance with the National Classification of Occupations of Ukraine (DK 003:2010), graduates are qualified to hold the following entry-level positions: 2320 Teacher of a General Secondary Education Institution; 2320 Teacher of a Specialised General Secondary Education Institution.
Further studies	The completion of the Educational Program provides the opportunity to continue studies at the third level of higher education (Doctoral studies). The acquired competencies and scientific foundation prepare graduates to pursue PhD studies in the following fields: Educational Sciences (Pedagogy); Mathematics and Informatics (Computer Science); Methodology of Teaching Mathematics and Informatics (Subject Didactics); Management and Administration of Educational Institutions.
5 -- Teaching and Evaluation	
Teaching and Learning	The educational process includes lectures, seminars, practical classes, independent study with opportunities for consultations with academic

	staff, and the preparation of a qualification thesis. Teaching is based on problem-based, interactive, project-based, information and communication technology (ICT)-supported, self-development, collaborative, and integrative learning approaches. The programme applies student-centred and problem-oriented learning aimed at developing competencies sufficient for generating new ideas and solving complex problems in the professional field. Final attestation is carried out through the public defence of the qualification thesis and a comprehensive qualification examination covering the major disciplines of the programme.
Evaluation	Cumulative evaluation system: this system assesses students based on all in-class and extracurricular educational activities aimed at mastering the curriculum requirements of the educational-professional program: continuous, modular, and final evaluations. Student evaluation takes the following forms: written and oral exams and reports, midterm and module-closing papers, independent work, year-long projects, defending practical work, taking a comprehensive final exam, and defending a thesis. Student performance is evaluated according to the following scales: 4-point national scale (excellent, good, satisfactory, unsatisfactory); 2-level national scale (passed / failed); 100-point scale; ECTS scale (A, B, C, D, E, F, FX). The cumulative assessment at the end of the semester consists of exams and reports, taking into account the points earned through continuous assessment and module-closing evaluations. The final state certification consists of a final comprehensive examination in the core disciplines of the program profile and the public defense of the Master's thesis.
6 -- Program competencies	
Integral competency	IC Ability to solve complex tasks and problems in the field of education, including the implementation of innovations and/or conducting research under uncertain conditions; knowledge of current trends in mathematics, informatics, and modern information technologies; ability to apply the latest achievements of mathematics and informatics in the educational process of secondary educational institutions, based on theoretical and methodological foundations, taking into account the complexity of pedagogical conditions.
General Competencies (GC)	GC 1: Ability to apply knowledge in practical situations. GC 2: Ability to use digital educational resources, information, and communication technologies in professional activities. GC 3: Ability to plan and manage the educational process, ensure and evaluate the quality of work, and organize the learning and development process for students. GC 4: Ability to identify and solve professional problems; critical and self-critical thinking. GC 5: Ability to generate new ideas (creativity) and make informed decisions. GC 6: Ability to develop, present, and manage educational projects, motivating participants to achieve goals. GC 7: Ability to conduct scientific and pedagogical research, forecast and present results. GC 8: Ability to exercise civil rights and duties, awareness of the values of a democratic society, sustainable development, and the rule of law. GC 9: Ability to communicate in the state language both orally and in writing. GC 10: Ability to engage in professional communication in a foreign language.

Professional Competencies of the specialty	PC 1: Ability to deepen knowledge and understanding of the subject area and professional activity. PC 2: Ability to apply innovations in professional activity, use digital technologies in the educational process, and demonstrate initiative and entrepreneurship. PC 3: Ability to monitor one's own pedagogical activity and determine needs, perspectives, and available resources for lifelong professional development. PC 4: Ability to model learning content, develop students' key competencies, and implement integrated learning; modeling educational content in accordance with mandatory learning outcomes defined by state educational standards. PC 5: Ability to use effective ways of motivating students for self-development, direct them toward progress, and develop a reasoned positive self-esteem, as well as organize students' cognitive activities. PC 6: Ability for constructive and safe interaction with participants in the educational process. PC 7: Ability to ensure the functioning of a safe and inclusive educational environment and create conditions that support its operation. PC 8: Ability to foster a culture of academic integrity in students and adhere to its principles in one's own professional activity. PC 9: Ability to develop a culture of a healthy and safe lifestyle in students, organize a safe educational environment, and use health-preserving technologies during the educational process. PC 10: Ability to strengthen students' Ukrainian national and civic identity. PC 11: Ability to apply foreign language knowledge in educational and professional activities. PC 12: Ability to navigate the information space, search for and critically evaluate information, and utilize it in professional activities. PC 13: Ability to recognize and value the interdependence of people and systems in a globalized world. PC 14: Ability for subject-to-subject interaction with students in the educational process. PC 15: Ability to involve parents in the educational process based on partnership principles. PC 16: Ability to work in a team with involved specialists to provide additional support to individuals with special educational needs.

	PC 17: Ability to provide pedagogical support to individuals with special educational needs. PC 18: Ability to ensure favorable conditions in the educational environment for every student, taking into account age and other individual characteristics. PC 19: Ability to conduct preventive and educational work with participants in the educational process regarding life safety, sanitation, and hygiene. PC 20: Ability to maintain personal physical and psycho-emotional health during professional activity. PC 21: Ability to provide first aid to participants in the educational process. PC 22: Ability to organize various types and forms of learning and cognitive activities for students. PC 23: Ability to create learning, upbringing, and development centers (hubs) for students. PC 24: Ability to evaluate learning outcomes, analyze results, and forecast the outcomes of the educational process. PC 25: Ability to develop students' capacity for self-assessment and peer-assessment of learning outcomes. PC 26: Ability to pursue personal professional development and accept support from colleagues. PC 27: Ability to provide support to colleagues in their professional development. PC 28: Ability to provide instruction taking into account the linguistic environment of the educational institution in the language of the respective indigenous people or national minority of Ukraine. PC 29: Ability to develop value-based attitudes in students. PC 30: Ability to identify and consider students' age and individual characteristics, as well as their psycho-emotional state, in the educational process. PC 31: Ability to foster a learning community where the rights of everyone are respected and considered. PC 32: Ability to recognize personal feelings, emotions, needs, and the emotional states of other participants, and to manage one's own emotional states. Specialized Subject Competencies (PC - Mathematics & Informatics) SC 1: Ability to formulate problems mathematically and in symbolic form for the purpose of analysis and solution based on knowledge of fundamental branches of mathematics. SC 2: Ability to understand problems and identify their essential features; distinguish main ideas from details and technicalities; isolate chains of reasoning in mathematical
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	proofs based on an axiomatic approach and arrange them in a logical sequence. SC 3: Ability to present mathematical reasoning and conclusions in written and oral forms suitable for a target audience of specialists and non-specialists, and to understand the mathematical reasoning of others involved in the same task. SC 4: Capacity to develop a mathematical model of a real-world situation and transfer mathematical knowledge into non-mathematical contexts; formulate complex optimization and decision-making tasks. Ability to check the adequacy of a mathematical model against empirical data. SC 5: Ability to express specific subject area terms in the language of mathematics. SC 6: Ability to improve existing and develop new mathematical methods of analysis, modeling, forecasting, and solving new problems in scientific research in mathematics and its teaching methodology. SC 7: Ability to formulate complex optimization and decision-making tasks and interpret their solutions in the original context of these tasks. SC 8: Ability to use principles, methods, and organizational procedures of research and/or innovation activities and generate new mathematical ideas for the independent development of projects. SC 9: Ability to understand the conceptual foundations of informatics education and its teaching methodology; trends in the development of informatics and the informatization of society; applying theoretical knowledge and practical skills to form basic and subject-specific informatics competencies in students. SC 10: Ability to deepen knowledge and understanding of the subject area and professional activity. SC 11: Ability to determine the specifics of teaching informatics in specialized (profile) schools, solve problems of various profiles and elective modules, and organize the informatics educational process in specialized classes. SC 12: Ability to develop diagnostic tools and conduct diagnostics, monitoring, and evaluation of the quality of acquired knowledge and formed skills in informatics. SC 13: Ability to develop and implement educational projects in informatics, projects involving information technologies, integrated tasks, and tasks of an applied nature. SC 14: Ability to organize and conduct extracurricular work, independent work, and research work for students in informatics.
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	SC 15: Ability to understand innovative ICT-oriented pedagogical technologies and use them in the educational process. SC 16: Ability to design electronic educational resources, use them in the educational process, conduct expert evaluations of their pedagogical potential, adapt them to the needs of the pedagogical process, and select modern, effective teaching and development methodologies.
7 -- Programme Learning Outcomes	
PLO 1: Demonstrates the ability to apply knowledge of psychology, pedagogy, fundamental, and applied sciences (according to the subject specialty) in practical educational situations; deepens subject-specific knowledge. PLO 2: Demonstrates the ability to use digital educational resources, information, and communication technologies for searching, processing, and exchanging information in professional activities; presents personal and collective results; implements distance and blended learning; effectively uses existing and, if necessary, creates new electronic (digital) resources. PLO 3: Names and describes the basic principles, functions, modern forms, and methods of managing educational activities; demonstrates the ability to plan and manage educational activities, and ensure and evaluate their quality. PLO 4: Formulates existing problems in the field of educational activity, demonstrates critical analysis skills, generates new ideas, argues for possible solutions, and critically evaluates their feasibility. PLO 5: Describes the methodology for developing educational projects, explains the content and purpose of their stages, analyzes the feasibility of managing their implementation process, and forecasts expected results. PLO 6: Defines and characterizes the basic principles, laws, and methodologies of scientific and pedagogical research; describes the apparatus of scientific and pedagogical research; demonstrates skills in presenting research results. PLO 7: Identifies, analyzes, and characterizes pedagogical innovations; demonstrates the ability for their practical application in professional activity. PLO 8: Describes quality indicators of pedagogical activity, analyzes the possible influence of internal and external factors on them, determines individual professional needs and ways to improve personal pedagogical mastery, and selects resources for lifelong professional development. PLO 9: Demonstrates the ability to classify, organize, and summarize educational material according to the conditions of the educational process, the needs for developing key competencies, and integrated learning. PLO 10: Names and analyzes ways to motivate students for self-development; demonstrates the ability to develop a practical implementation plan to foster realistic positive self-esteem and self-identity. PLO 11: Demonstrates the ability to ensure constructive and safe interaction with participants in the educational process. PLO 12: Knows and adheres to the conditions for the functioning of a safe and inclusive educational environment. PLO 13: Demonstrates the ability to act autonomously and as part of a team.	

PLO 14: Adheres to the culture of academic integrity in personal activities and demonstrates the ability to foster it in students.

Subject-Specific Programme Learning Outcomes

SPLO 1: Uses generally accepted terminology in the state and foreign languages in scientific, professional, and social spheres of activity regarding professional issues; selects specialized literature; finds, analyzes, and uses information from various reference sources.

SPLO 2: Reproduces knowledge of fundamental branches of mathematics in the volume necessary for mastering the mathematical apparatus of the relevant field and using mathematical methods in the chosen profession.

SPLO 3: Possesses mathematical methods of analysis, forecasting, and evaluation of model parameters, mathematical ways of interpreting numerical data, and principles of the functioning of natural processes.

SPLO 4: Demonstrates the ability to construct professional communication in the educational and scientific process, select initial research data, compile a list of used sources, and describe scientific results.

SPLO 5: Selects and uses fundamental mathematical regularities in professional activity; integrates knowledge from various fields to solve theoretical and/or practical tasks and problems.

SPLO 6: Justifies the application of new approaches to develop decision-making strategies in complex, unpredictable conditions; uses strategies with students that promote the development of their positive self-esteem and self-identity.

SPLO 7: Explains and justifies rational ways of searching for and using scientific and technical information, including electronic information networks; selects information resources, including electronic ones, to find appropriate mathematical models.

SPLO 8: Understands the conceptual foundations of education in the field of informatics and its teaching methodology in educational institutions, as well as trends in the development of informatics and the informatization of society.

SPLO 9: Demonstrates theoretical knowledge and practical skills regarding the formation of basic and subject-specific informatics competencies in students.

SPLO 10: Manifests the ability to search for additional information and process it independently to deepen knowledge in the subject area.

SPLO 11: Understands and determines the specifics of teaching informatics in specialized (profile) schools; demonstrates the ability to organize the informatics educational process in specialized classes.

SPLO 12: Possesses the skills to solve problems of the school informatics course of various profiles and elective modules; can analyze and evaluate the effectiveness of their solutions.

SPLO 13: Able to develop diagnostic tools and conduct diagnostics, monitoring, and quality assessment of acquired knowledge and formed skills in informatics.

SPLO 14: Able to develop and implement educational projects in informatics and projects involving information technologies.

SPLO 15: Able to develop integrated tasks and tasks of an applied nature and use them in the educational process.

- SPLO 16: Able to organize and conduct extracurricular, independent, and research work for students in informatics.
- SPLO 17: Knows and understands the essence of innovative ICT-oriented pedagogical technologies and implements them in the educational process.
- SPLO 18: Able to design electronic educational resources, use them in the educational process, conduct expert evaluations of the pedagogical potential of electronic resources, and adapt them to the requirements and needs of the pedagogical process.
- SPLO 19: Able to exercise rights and duties as a member of society; aware of the values of a civil (free democratic) society and the necessity of its sustainable development, the rule of law, and human and civil rights and freedoms in Ukraine; capable of participating in the life of society and management at various levels, including volunteer activities.
- SPLO 20: Able to communicate in the state language both orally and in writing.
- SPLO 21: Able to communicate in a foreign language according to the subject specialty.

8 -- Resources required for the implementation of the programme

Human Resources	The qualitative composition of the teaching and research staff implementing the "Mathematics" educational program meets the accreditation requirements for educational activities at the second (Master's) level of higher education. The educational process is ensured by the teaching and research staff of the institute's departments, including specialists holding Doctor of Science (DsC) and Candidate of Science (PhD) degrees, as well as professors, associate professors, and senior lecturers. The instructors ensuring the implementation of the program possess the necessary basic qualifications and a sufficient number of publications in professional and scientometric journals; furthermore, they actively participate in various levels of scientific and practical conferences (international, national, and regional). The teaching staff responsible for the educational-professional program undergoes continuous professional development according to the plan for the professional growth and training of scientific, pedagogical, and research staff, and also participates in extracurricular professional internships within the framework of grant programs.
Material and Technical Resources	The available premises meet the standards for regulated area. It can be established that the requirements of the institute's educational programs are 100% met in terms of classrooms, and 100% of these facilities are equipped with multimedia devices. For the conduct of practical sessions—particularly for subjects such as programming, information retrieval, and data processing—specialized computer labs are available, equipped with the necessary software and unlimited, open internet access. Infrastructure for rest and health maintenance is also provided (canteen, sports ground, gym, fitness room, medical office, etc.).
Information and Educational-Methodological Resources	The information, educational, and methodological support for the professional training of students within the framework of the "Mathematics" educational-professional master's program complies with the accreditation requirements. - official website (https://kme.org.ua/en/); - unified educational platform “IRIS” (https://irisz.kmf.uz.ua/#/orarend); - official page of the department (https://kmf.uz.ua/uk/strukturni-pidrozdily/kafedri/kafedra-matematiki-ta-informatiki/); - wireless Internet access points; - unlimited Internet access; - scientific library, reading rooms; - corporate email; - study and work schedules; - educational and methodological complexes of disciplines, syllabuses.

9 -Academic Mobility

National Credit Mobility	On general grounds within the territory of Ukraine. Mobility is carried out on the basis of bilateral agreements between the Ferenc Rákóczi II Transcarpathian Hungarian University and educational institutions of partner countries.
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International Credit Mobility	The right of higher education students to academic mobility is implemented through international programs and projects, cooperation agreements in the field of education and science between the institute and partner institutions, or on the student's own initiative, supported by the institute's administration on the basis of individual invitations. The forms of academic mobility at the institute include studying within mobility programs, language or scientific internships, and participation in industrial (practical) training. The Ferenc Rákóczi II Transcarpathian Hungarian University participates in a project within the ERASMUS+ program, as well as in the "Makovecz" international student mobility program, which has been operating since 2016 in the countries of the Carpathian Basin – Hungary, Ukraine, Romania, Slovakia, and Serbia.
Education of Foreign Higher Education Students	Education of foreign students is not conducted.
10. Forms of Assessment of Higher Education Students	
Forms of Assessment of Higher Education Students	Complex qualifying examination in professional subjects and defense of the Master's thesis.
Requirements for the Bachelor Thesis	According to the curriculum, students of Ferenc Rákóczi II Transcarpathian Hungarian University prepare and defend qualification theses. The Master's thesis is the final academic result that allows the demonstration of a student's level of theoretical knowledge, practical training, and ability to work independently in the chosen scientific field. The theses must be comprehensive scientific works, characterized by elements of scientific novelty and relevance of the topic, possess practical and theoretical significance, and contain a set of results and statements intended for public defense. The qualification thesis (project) of a student is subject to mandatory academic plagiarism checking in accordance with the Ferenc Rákóczi II Transcarpathian Hungarian University Academic Integrity Regulations. Full-text electronic versions of the qualification theses (projects), after their defense, are submitted by the respective departments to the Ferenc Rákóczi II Transcarpathian University Repository of Academic Texts, which operates as a local repository of the National Repository of Academic Texts.
Requirements for the Assessment Exam	The purpose of the complex final examination is to evaluate the level of the student's learning outcomes achievable within this educational program.
Requirements for Public Defense (Presentation)	A mandatory condition for admission to the official defense of the Master's thesis before the Examination Committee is the successful completion of the academic plagiarism check. Master's theses (projects) are evaluated by the Examination Committee during the defense. During the public defense, the candidate for the Master's degree must be capable of presenting the content of the conducted research clearly and confidently, providing reasoned answers to questions, and engaging in scientific debate. The student's presentation must be supplemented by visual aids and explanatory notes, which must be presented to the audience. The decision of the Examination Board—based on the students' final examination results—regarding the awarding of the Master's degree, the granting of professional qualifications, and the issuance of the Master's diploma, is announced on the day of the final examination, after the minutes of the board meetings have been prepared in accordance with the effective regulations.

2. Free Elective Courses

27% of the total number of credits is allocated to courses chosen by the student. The indicative list of elective courses may be supplemented by a decision of the department based on discussions with the academic community, employers, and students. Higher education students have the opportunity to choose courses from the institute-wide list of educational components.

3. Requirements for the Internal Quality Assurance System of Higher Education

The higher education institution (HEI) operates a system for ensuring the quality of educational activities and the quality of higher education (the Internal Quality Assurance System), which includes the following procedures and measures:

- 1) defining the principles and procedures for ensuring the quality of higher education;
- 2) monitoring and periodic review of educational programmes;
- 3) annual evaluation of higher education students, as well as academic and teaching staff of the HEI;
- 4) professional development of teaching, research, and academic staff through internships or advanced training courses with the issuance of a confirming certificate at least once every five years, or through the defence of a dissertation;
- 5) provision of the necessary resources for the organisation of the educational process, including those required for students' independent work, for each educational programme;
- 6) establishment of information systems for the effective management of the educational process;
- 7) ensuring the transparency and public availability of information on educational programmes, levels of higher education, and qualifications;
- 8) establishment of an effective system for preventing academic plagiarism in the research works of HEI staff and higher education students.

The internal quality assurance system of the HEI is evaluated by the National Agency for Higher Education Quality Assurance upon submission by the HEI.

4. Requirements of Professional Standards

During the development of the educational programme in the subject specialty A4.04 Secondary Education (Mathematics), the draft Standard of Higher Education of Ukraine for the second (Master's) level of higher education in the field of knowledge A Education and specialty A4 Secondary Education (by subject specializations), as well as the professional standard "Teacher of a General Secondary Education Institution" (effective from 01 November 2024), were taken into account.

5. Requirements for the Previous Level of Education of Applicants

Applicants holding a Bachelor's degree or a Master's/Specialist's degree are eligible for admission to the Master's programme. Where admission is based on a prior qualification obtained in a different field of study or specialty, the University develops an individual learning pathway for the student, including the establishment of requirements for the completion of additional coursework to eliminate academic deficiencies (academic differences)..

6. Programme Volume by Compulsory and Elective Components

The total volume of the educational and professional programme is 120 ECTS credits. The cycles of general, professional, and practical training — the compulsory components of the programme — amount to 88 ECTS credits (73%). The elective component chosen by students amounts to 32 ECTS credits (27%).

7. List of Components of the Educational and Professional Programme and Their Logical Sequence

Course code	Type of Learning Activity	Volume, ECTS credits
COMPULSORY COMPONENTS OF THE EDUCATIONAL AND PROFESSIONAL PROGRAMME		
1.1. General Training cycle (GT)		
GT 1	Civil defense and its historical tendencies of formation in Ukraine	3
GT 2	History of mathematics	3
GT 3	Scientific philosophy and methodology of scientific activity	4
GT 4	Ukrainian language (for professional purposes)	3
GT 5	Foreign language (for professional purposes)	3
1.2. Professional and Practical Training Cycle (PT)		
PT 1	Selected topics in elementary mathematics	6
PT 2	Database Management Systems (DBMS)	3
PT 3	Computer science teaching methodology	7
PT 4	Methodology of teaching mathematics in upper secondary school	10
PT 5	Scientific foundations of the school mathematics course	3
PT 6	Methods of solving olympiad problems in computer science	3
PT 7	Statistical foundations of scientific research	3
PT 8	Additional Topics in Modern Methods of Teaching Mathematics and Computer Sciences	3
PT 9	Modern information technologies in education	3
1.3 Practical Training and Assessment (PTA)		
PTA 1	Pedagogical practicum in upper secondary school	18
PTA 2	Preparation of master's thesis	13
PTA3	Certification of Higher Education Students (Qualification Thesis Defense)	-
PTA4	Certification of Higher Education Students (Comprehensive Qualification Exam in Mathematics, Computer Science, and Teaching Methodology)	-
Free Elective Courses (FEC)		
FEC 1	Student's Free Elective Course 1	4
FEC 2	Student's Free Elective Course 2	4
FEC 3	Student's Free Elective Course 3	4
FEC 4	Student's Free Elective Course 4	4
FEC 5	Student's Free Elective Course 5	4
FEC 6	Student's Free Elective Course 6	4
FEC 7	Student's Free Elective Course 7	4
FEC 8	Student's Free Elective Course 8	4
Total for the Programme		120

8. Requirements for the Structure of Course Programmes, Internships, and Individual Assignments

Master's learning outcomes are defined by types of learning activities as a specification of the programme-level (integrative) learning outcomes in the curricula of courses, internships, and individual assignments, and are used as criteria for selecting the necessary content modules and corresponding learning elements.

The alignment of the educational programme with the training programmes by types of learning activities ensures the quality of higher education at the design stage.

The course programme also defines the total time required for mastery, the form of final assessment, the list of core courses, requirements for informational and methodological support, requirements for assessment tools and criteria, and requirements for the structure of the course syllabus.

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9. Form of Assessment of Higher Education Students

The final assessment is conducted by evaluating the level of competence formation. The form of assessment includes the completion of a qualification exam and the defence of the qualification work, resulting in the awarding of the educational qualification in the diploma: "Master of Education. Secondary Education (Mathematics). Teacher (Mathematics and Informatics)". The assessment is conducted openly and publicly.

10. Duration of Study by Mode of delivery

Full-time study – 1 years 10 months; part-time study – 1 years 10 months.

PROCEDURE FOR AWARDING A PROFESSIONAL QUALIFICATION

1. General Provisions

The awarding of a professional qualification to graduates of the second-cycle (Master's) Educational and Professional Programme "Mathematics" is carried out in accordance with:

1. the Law of Ukraine "On Higher Education" (<https://zakon.rada.gov.ua/laws/show/1556-18#Text>);
2. Resolution of the Cabinet of Ministers of Ukraine No. 1223 of 25 October 2024 "Certain Issues of Awarding Professional Qualifications by Higher Education Institutions" (<https://www.kmu.gov.ua/npas/deiaki-pytannia-prysvoiennia-profesiinykh-kvalifikatsii-zakladamy-vyshchoi-os-a1223>);
3. the Professional Standard "Teacher of a General Secondary Education Institution", approved by Order of the Ministry of Education and Science of Ukraine No. 1225 of 29 August 2024 "On Approval of the Professional Standard for the Profession 'Teacher of a General Secondary Education Institution'" (<https://mon.gov.ua/npa/pro-zatverdzhennia-profesiinoho-standartu-vchytel-zakladu-zahalnoi-serednoi-osvity>);
4. the decision of the Academic Council of the Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education dated 24 April 2025 (Protocol No. 3);
5. the internal Regulation "Procedure for Awarding Professional Qualifications" (<https://kme.org.ua/uk/mik/#dod-2-i-18-pol-poryadok-prisv>);
6. Rector's Order No. 47-Bn of 25 April 2025 (https://kme.org.ua/wp-content/uploads/2025/04/nakaz_2025_47bn.pdf);
7. the University's Internal Quality Assurance System.

2. Requirements for Awarding a Professional Qualification

A professional qualification is awarded to a higher education student provided that the student has:

1. Successfully completed the educational programme in full;
2. Achieved the programme learning outcomes;
3. Successfully completed teaching practice placements and the final assessment;
4. Demonstrated the ability to perform professional functions in accordance with the Professional Standard for Teachers.

3. Bodies Responsible for Awarding the Professional Qualification

The procedure is administered by the graduating department, the Examination Board, and representatives of employers. The decision to award a professional qualification is made by the Examination Board and approved by the Rector's order.

4. Instruments for Assessing Professional Competencies

The assessment of a student's ability to perform professional functions is comprehensive and includes the following components:

4.1. Analysis of Learning Outcomes

Assessment of academic achievement in subject-specific disciplines, methodology courses, pedagogy, and psychology.

4.2. Teaching Practice

Evaluation of the student's performance during teaching practice in accordance with the integrated practice programme.

4.3. Final Assessment

The final assessment includes:

a comprehensive qualification examination in major disciplines;

a public defence of the Master's qualification thesis.

The assessment evaluates:

subject-specific competence;

methodological competence;

pedagogical reflection;

professional competencies required for teaching practice.

4.4. Student Portfolio

The graduating department reviews lesson plans, teaching and learning materials, teaching practice reports, and participation in educational projects, competitions, and other professional activities.

5. Criteria for Awarding the Qualification

A professional qualification is awarded if the student has demonstrated the required professional competencies, successfully completed teaching practice, passed the final assessment, and received a positive recommendation from the graduating department.

6. Documentation of the Procedure

The results are recorded in the minutes of the Examination Board, academic records, and the Diploma Supplement.

The decision to award the professional qualification is indicated in the diploma.

7. Quality Assurance of the Procedure

The procedure is regularly reviewed within the framework of the University's internal quality assurance system through employer feedback, analysis of accreditation outcomes, and updates in accordance with professional standards.

In accordance with the University's internal regulations, external stakeholders (employer representatives) are mandatorily involved in the final assessment process to ensure the relevance of programme outcomes to labour market requirements and professional standards.

Matrix of Alignment between the Educational Programme Curriculum and the Labour Functions and Competencies Defined in the Professional Standard “Teacher of a General Secondary Education Institution”

Professional Standard “Teacher of a General Secondary Education Institution”, approved by Order of the Ministry of Education and Science of Ukraine No. 1225 of 29 August 2024: <https://mon.gov.ua/npa/pro-zatverdzhennia-profesiinoho-standartu-vchytel-zakladu-zahalnoi-serednoi-osvity>

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
A. Teaching Students Subjects (Integrated Courses)	A1.1. Ability to ensure education in the state language and to use the state language in professional activities	GC7, GC8, PC5, SC1	PLO11, SPLO20	GT4, PT3, PT4, PTA1, PTA2, PTA4
	A1.2. Ability to ensure students' learning of a foreign language and to communicate in a foreign language within the professional community	GC10	SPLO21	GT5
	A1.3. Ability to form and develop students' language and communication skills and abilities	GC1, GC2, GC3, PC11, PC12, SC4	PLO1, PLO9, PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
	A1.4. Ability to use language and linguistic means as a tool for motivating students to explore the world	GC7, PC12	PLO10, PLO11	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	A2.1. Ability to model learning content in accordance with the mandatory learning outcomes of students	PC11, PC12, SSC4, SC5	PLO3, PLO9, SPLO11, SPLO14	GT3, PT3, PT4, PTA1, PTA4
	A2.2. Ability to form and develop students' key competencies and cross-curricular skills	GC1, GC2, GC3, PC11, PC12, SC4	PLO1, PLO9, PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	A2.3. Ability to implement integrated learning for students	PC11, SC6	PLO7, PLO9, SPLO15	GT3, PT1, PT3, PT4, PT8, PTA1, PTA2, PTA3, PTA4
	A2.4. Ability to select and use modern and effective methods and technologies for teaching, upbringing and development of students	GC6, PC21, SSC8, SC9	PLO7, SPLO17, SPLO18	GT3, PT2, PT3, PT9, PTA1, PTA4
	A2.5. Ability to develop students' critical thinking	PC12, SSC10	PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	A3.1. Ability to navigate the information space, use open resources, information and communication	GC6, PC21, SC8, SC9	PLO2, SPLO17	GT3, PT2, PT3, PT4, PT5, PT6, PT7, PT8, PT9, PPA1, PTA2, PTA3, PTA4

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
	technologies, and digital technologies			
	A3.2. Ability to effectively use digital resources and tools in the educational process	GC6, PC21, SC8, SC9	PLO2, SPLO18	GT3, PT2, PT3, PT4, PT5, PT6, PT7, PT8, PT9, PTA1, PTA2, PTA3, PTA4
	A3.3. Ability to develop students' information and digital competence	GC6, SC8, SC9	SPLO17, SPLO18	GP3, PT2, PT3, PT9, PTA1, PTA4
B. Partnership Interaction with Participants in the Educational Process	B1.1. Ability to identify and take into account students' age-related and other individual characteristics in the educational process	PC16, SC11	PLO10, PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
	B1.2. Ability to use strategies for working with students that promote the development of their positive self-esteem and self-identity	PC12, PC16	PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	B1.3. Ability to motivate students and organise their cognitive activity	PC12	PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	B1.4. Ability to build a community of learners in which everyone feels a sense of belonging	GC3, GC7, PC14	PLO11, PLO13	GT1, GP3, GP4, PT3, PT4, PTA1, PTA4
	B2.1. Ability to understand personal feelings,	GC3	PLO8	GT3, PT1, PT3, PT4, PT5, PT6,

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
	emotions, and needs and to manage one's own emotional states			PT7, PTA1, PTA2, PTA3, PTA4
	B2.2. Ability to interact constructively and safely with participants in the educational process	GC4, GC5, PC15	SPLO4, SPLO20, SPLO21	GT2, GT3, GT4, GT5, PT3, PT4, PTA4
	B2.3. Ability to understand and value the interdependence of people and systems in a global world	GC3, GC4	PLO4, PLO8	GT3, PT7, PTA1, PTA2, PTA3, PTA4
	B3.1. Ability to engage in subject–subject interaction with students in the educational process	GC7, PC14	PLO11, PLO13	GT1, GT3, GT4, PT3, PT4, PTA1, PTA4
	B3.2. Ability to involve parents in the educational process on the basis of partnership	GC7, PC14	PLO11	GT1, GT4, PT3, PT4, PTA1, PTA2, PTA4
	B3.3. Ability to work in a team with other specialists to provide additional support for persons with special educational needs	PC16, SC11	PLO12, PLO13	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
C. Creating a Safe and Inclusive Educational Environment	C1.1. Ability to create conditions that ensure the functioning of an inclusive educational environment	PC16, SC11	PLO12	GT1, PT3, PT4, PPA1, PTA2, PTA3, PTA4
	C1.2. Ability to provide pedagogical support to persons	PC16, SC11	PLO12	GT1, PT3, PT4, PTA1,

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
	with special educational needs			PTA2, PTA3, PTA4
	C1.3. Ability to ensure favourable conditions in the educational environment for each learner according to their individual needs, capabilities, abilities and interests	PC16, SC11	PLO10, PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
	C2.1. Ability to organise a safe educational environment	GC1	PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
	C2.2. Ability to carry out preventive and awareness-raising activities with participants in the educational process regarding life safety, sanitation and hygiene	GC1	PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
	C2.3. Ability to cultivate a culture of healthy and safe living among students	GC1	PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4
	C2.4. Ability to maintain personal physical and mental health in professional activities	GC1, GC3	PLO8, PLO12	GT1, GP3, PT1, PT3, PT4, PT5, PT6, PT7, PTA1, PTA2, PTA3, PTA4
	C2.5. Ability to provide first aid to participants in the educational process	GC1	PLO12	GT1, PT3, PT4, PTA1, PTA2, PTA3, PTA4

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
D. Educational Process Management	D1.1. Ability to design learning, upbringing and development environments for students	PC11, PC12	PLO3, PLO11	GT1, GT4, PT3, PT4, PTA1, PTA2, PTA4
	D1.2. Ability to design learning content in accordance with the mandatory learning outcomes of students	PC11, PC12, SC4, SC5	PLO3, PLO9, SPLO11, SPLO14	GT3, PT3, PT4, PTA1, PTA4
	D2.1. Ability to predict the outcomes of the educational process	GC3, PC17	PLO4, PLO8	GT3, PT1, PT3, PT4, PT5, PT6, PT7, PTA1, PTA2, PTA3, PTA4
	D2.2. Ability to plan the educational process	PC11, PC12	PLO3, PLO9	GPT3, PT3, PT4, PTA1, PTA4
	D2.3. Ability to assess students' learning outcomes	PC13, SC10	PLO11, SPLO13	GP1, GP4, PT3, PT4, PTA1, PTA2, PTA4
	D3.1. Ability to organise the process of teaching, learning and student development	PC12	PLO10	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	D3.2. Ability to organise various types and forms of learning and cognitive activities of students	PC12	PLO10, PLO11	PT3, PT4, PTA1, PTA2, PTA3, PTA4
	D3.3. Ability to organise the educational environment	PC16	PLO12	GT1, PPP3, PT4, PTA1, PTA2, PTA3, PTA4

Codes and Titles of Labour Functions of the Professional Standard	Codes and Titles of Competencies of the Professional Standard	Corresponding Codes in the Educational Programme: General and Professional Competencies (GC, PC, SC)	Corresponding Codes in the Educational Programme: Programme Learning Outcomes (PLO, SPLO)	Relevant Educational Components
E. Continuous Professional Development	E1.1. Ability to apply scientific methods of inquiry in the educational process	GC3, PC17, SC12	PLO6, SPLO4	GT2, GT3, PT3, PT4, PT7, PT8, PTA1, PTA2, PTA3, PTA4
	E1.2. Ability to use innovations in professional activities	GC3, PC17	PLO7, PLO8, SPLO10	GT2, GT3, PT1, PT3, PT4, PT5, PT6, PT7, PTA1, PTA2, PTA3, PTA4
	E1.3. Ability to apply diverse approaches to solving problems in pedagogical practice	GC3, GC4, PC15, PC17	PLO4, PLO14	GT3, GT4, PT3, PT4, PT5, PPA1, PTA2, PTA3, PTA4

Matrix of Correspondence between Programme Learning Outcomes (PLOs) and the Descriptors of the National Qualifications Framework (NQF)

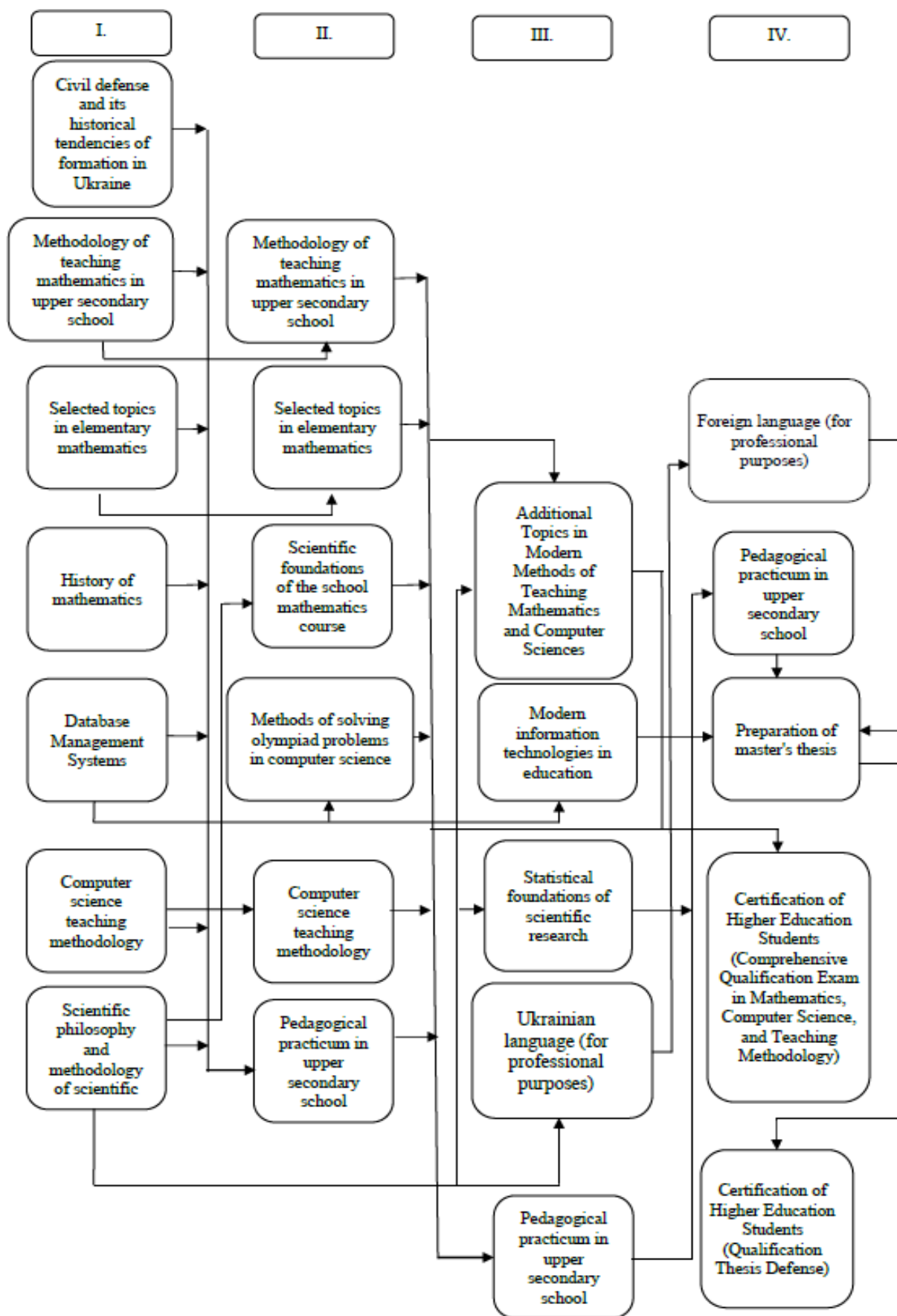
National Qualifications Framework of Ukraine (approved by Resolution of the Cabinet of Ministers of Ukraine No. 1341 of 23 November 2011, as amended):

<https://zakon.rada.gov.ua/laws/show/1341-2011-%D0%BF#Text>

Classification of Competences under the NQF	Descriptors of the National Qualifications Framework (NQF Level 7 – Master’s Degree)	Corresponding Programme Learning Outcomes (PLOs)
Knowledge (K1)	Specialized conceptual knowledge, including contemporary scientific achievements in the field of professional activity or area of knowledge, which forms the basis for original thinking and conducting research.	PLO1, PLO2, PLO3, PLO4, PLO5, PLO6, SPLO1, SPLO2, SPLO3, SPLO4, SPLO5, SPLO6, SPLO7
Knowledge (K2)	Critical understanding of problems within the field and at the interface of different fields of knowledge.	PLO4, PLO5, PLO6, PLO8, SPLO3, SPLO4, SPLO5, SPLO10, SPLO14, SPLO16

Classification of Competences under the NQF	Descriptors of the National Qualifications Framework (NQF Level 7 – Master’s Degree)	Corresponding Programme Learning Outcomes (PLOs)
Skills (S1)	Specialized problem-solving skills required for conducting research and/or carrying out innovative activities aimed at developing new knowledge and procedures.	PLO4, PLO5, PLO6, PLO7, PLO8, SPLO3, SPLO4, SPLO5, SPLO10, SPLO14, SPLO16
Skills (S2)	Ability to integrate knowledge and solve complex problems in broad or multidisciplinary contexts.	PLO3, PLO4, PLO5, PLO7, PLO8, PLO9, SPLO5, SPLO8, SPLO11, SPLO14, SPLO15, SPLO17
Skills (S3)	Ability to solve problems in new or unfamiliar environments in the presence of incomplete or limited information.	PLO4, PLO6, PLO7, PLO8, SPLO4, SPLO10, SPLO14, SPLO16, SPLO17, SPLO18
Communication (C1)	Clear and unambiguous communication of one’s knowledge, conclusions, and arguments to both specialists and non-specialists.	PLO11, PLO13, SPLO4, SPLO11, SPLO20
Communication (C2)	Use of foreign languages in professional activities.	SPLO1, SPLO21
Communication (C3)	Use of information and communication technologies in professional activities.	PLO2, PLO7, SPLO17, SPLO18
Responsibility and Autonomy (RA1)	Management of complex technical or professional activities or projects.	PLO3, PLO7, PLO8, PLO9, PLO10, PLO11, SPLO11, SPLO14, SPLO15
Responsibility and Autonomy (RA2)	Ability to make decisions in complex and unpredictable conditions.	PLO4, PLO6, PLO8, SPLO4, SPLO10, SPLO14, SPLO16
Responsibility and Autonomy (RA3)	Responsibility for the development of professional knowledge and practice, and for evaluating the strategic development of a team.	PLO8, PLO13, PLO14, SPLO10, SPLO14
Responsibility and Autonomy (RA4)	Ability to pursue further learning that is largely autonomous and self-directed.	PLO8, PLO14, SPLO10

11. Structural and logical scheme Structural and Logical Scheme of the Educational and Professional Programme



12. Final provisions

The educational and professional programme must be published on the institute's website prior to the start of admission to the HEI in accordance with the "Admission Rules".

The Head of the Graduating Department and the Programme Guarantee for the specialty are responsible for the implementation of the educational and professional programme and for ensuring the quality of higher education.

13. List of regulatory documents on which the educational-professional program is based

1. **Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)** [Electronic resource]. Available at: https://ihed.org.ua/wp-content/uploads/2018/10/04_2016_ESG_2015.pdf
2. **Law of Ukraine "On Higher Education"** [Electronic resource]. Available at: <http://zakon4.rada.gov.ua/laws/show/1556-18>
3. **National Classification of Occupations (CO), as of 01 October 2015** [Electronic resource]. Available at: <http://buhgalter911.com/res/spravochniki/klassifikprofessiy.aspx>
4. **Classification of Types of Economic Activity: National Classifier of Ukraine NACE 009:2010** [Electronic resource]. Available at: <http://dtk.com.ua/show/0sid0177.html>
5. **Methodological Recommendations for the Development of Higher Education Standards:** Approved by the Higher Education Sector of the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine, Minutes No. 3 of 29 March 2016 [Electronic resource]. Available at: <http://mon.gov.ua/>
6. **Order of the Ministry of Education and Science of Ukraine No. 512 of 27 March 2025 "On Approval of the Methodological Recommendations for the Development of Higher Education Standards"**. Available at: <https://mon.gov.ua/static-objects/mon/sites/1/vishcha-osvita/2025/03/27/nakaz-mon-512-vid-27-03-2025.pdf>
7. **National Qualifications Framework:** Annex to the Resolution of the Cabinet of Ministers of Ukraine No. 1341 of 23 November 2011 [Electronic resource]. Available at: <http://zakon5.rada.gov.ua/laws/show/1341-2011-%D0%BF>
8. **On Approval of Amendments to the National Classifier of Ukraine DK 003:2010:** Order of the Ministry of Economic Development and Trade of Ukraine No. 1084 of 02 September 2015 [Electronic resource]. Available at: <http://buhgalter911.com/ShowArticle.aspx?a=272508>
9. **On the Specifics of Implementing the List of Fields of Knowledge and Specialties for the Training of Higher Education Students Approved by the Resolution of the Cabinet of Ministers of Ukraine No. 266 of 29 April 2015:** Order of the Ministry of Education and Science of Ukraine No. 1151 of 06 November 2015 [Electronic resource]. Available at: <http://zakon2.rada.gov.ua/laws/show/z1460-15>
10. **Development of the Higher Education Quality Assurance System in Ukraine: An Information and Analytical Review** [Electronic resource]. Available at: http://ihed.org.ua/images/biblioteka/Rozvitok_sisitemi_zabesp_yakosti_VO_UA_2015.pdf
11. **Draft Higher Education Standard for Specialty 014 "Secondary Education" at the Second (Master's) Level of Higher Education** [Electronic resource]. Available at: <https://mon.gov.ua/storage/app/media/gromadske-obgovorennya/2023/03/20/HO-proyekt.stand.VO.014-Serednya.osvita.na.druhomu-mahister.rivni.20.03.2023.doc>
12. **Professional Standard "Teacher of a General Secondary Education Institution"** [Electronic resource]. Available at: <https://mon.gov.ua/npa/pro-zatverdzhennia-profesiinoho-standartu-vchytel-zakladu-zahalnoi-serednoi-osvity>
13. **List of Fields of Knowledge and Specialties for the Training of Higher Education and Professional Pre-Higher Education Students (entered into force on 1 November 2024)** [Electronic resource]. Available at: <https://zakon.rada.gov.ua/laws/show/1021-2024-%D0%BF#Text>

APPENDICES

Table 1. Matrix of Correspondence between Program Competencies and the Components of the Educational and Professional Program “Mathematics”

	PTA4	PTA3	PTA2	PTA1	PT9	PT8	PT7	PT6	PT5	PT4	PT3	PT2	PT1	GT5	GT4	GT3	GT2	GT1		IC
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	GC1
+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+				GC2
+	+	+	+	+		+				+	+					+				GC3
+	+	+	+	+	+			+		+	+		+				+			GC4
+	+	+	+	+	+		+		+	+	+					+				GC5
+	+	+	+	+						+	+	+				+				GC6
+	+	+	+	+			+		+	+						+				GC7
															+		+	+		GC8
															+		+	+		GC9
														+						GC10
+	+	+	+	+	+	+		+	+	+	+	+	+	+		+	+			PC1
+	+	+	+	+	+	+		+		+	+					+				PC2
+	+	+	+	+	+					+	+					+				PC3
+	+	+	+	+						+	+						+			PC4
+	+	+	+	+				+	+	+	+		+							PC5
+	+	+	+	+						+	+				+					PC6
+	+			+						+	+							+		PC7
+	+	+	+	+	+		+			+	+					+	+			PC8
+	+	+	+	+						+	+							+		PC9
															+			+		PC10
														+						PC11
															+	+	+	+		PC12
									+	+	+			+	+	+				PC13
+	+			+				+		+	+									PC14
+	+			+						+	+									PC15
+	+									+	+							+		PC16
+	+			+						+	+									PC17
+	+			+		+				+	+									PC18
+	+			+						+	+							+		PC19
+	+									+	+							+		PC20

Table 2. Matrix of Alignment between Program Competencies and the Components of the Educational and Professional Program “Mathematics”

	PTA4	PTA3	PTA2	PTA1	PT9	PT8	PT7	PT6	PT5	PT4	PT3	PT2	PT1	GT5	GT4	GT3	GT2	GT1	PC21
		+																+	PC21
+	+				+				+	+									PC22
+	+				+					+	+								PC23
+	+			+						+	+								PC24
+	+			+						+	+								PC25
+	+									+	+					+			PC26
+	+			+						+	+								PC27
+	+									+	+								PC28
+	+			+						+	+				+				PC29
+	+			+				+		+	+								PC30
+	+			+						+	+								PC31
+	+			+						+	+								PC32
+	+						+	+					+						SC1
+	+								+				+			+			SC2
+	+						+		+				+		+				SC3
+	+	+	+	+				+		+	+								SC4
+	+	+	+	+		+			+	+	+					+	+		SC5
+	+									+	+								SC6
+	+	+	+	+			+	+		+	+								SC7
+	+		+				+	+	+							+			SC8
+	+	+		+	+	+	+	+			+	+				+			SC9
+	+		+	+	+			+	+		+	+	+			+	+		SC10
+	+			+							+					+			SC11
+	+	+	+	+	+						+					+			SC12
+	+			+	+			+			+	+				+			SC13
+	+	+	+	+							+	+				+			SC14
+	+	+	+	+	+						+	+				+			SC15
+	+	+	+	+	+		+				+	+				+			SC16

Table 3. Matrix of Alignment between Programme Learning Outcomes (PLO) and the Components of the Educational and Professional Program “Mathematics”

	PTA4	PTA3	PTA2	PTA1	PT9	PT8	PT7	PT6	PT5	PT4	PT3	PT2	PT1	GT5	GT4	GT3	GT2	GT1	PLO1
+	+	+	+	+						+	+								PLO2
+	+	+	+	+	+	+	+	+		+	+	+				+			PLO3
+	+	+	+	+						+	+								PLO4
+	+	+	+	+	+					+	+								PLO5
+	+	+	+	+			+			+	+					+	+		PLO6
+	+	+	+	+		+				+	+					+			PLO7
+	+	+	+	+						+	+					+			PLO8
+	+	+	+	+				+	+	+	+		+						PLO9
+	+	+	+	+						+	+								PLO10
+	+		+	+						+	+								PLO11
+	+	+	+	+						+	+							+	PLO12
+	+			+										+	+	+		+	PLO13
+	+	+	+	+					+	+	+			+	+	+			PLO14

Table 4. Matrix of Alignment between Subject-Specific Programme Learning Outcomes (SPLOs) and the Components of the Educational and Professional Program “Mathematics”

PTA4	PTA3	PTA2	PTA1	PT9	PT8	PT7	PT6	PT5	PT4	PT3	PT2	PT1	GT5	GT4	GT3	GT2	GT1	
+				+				+				+	+	+	+	+	+	SPL01
+						+	+	+							+			SPL02
+	+	+	+	+		+				+								SPL03
+	+	+	+						+	+				+	+	+		SPL04
+	+	+	+					+	+			+			+			SPL05
+	+					+	+								+		+	SPL06
+	+		+				+	+		+					+			SPL07
+	+	+	+	+			+			+								SPL08
+				+						+	+				+			SPL09
+	+	+	+	+		+	+					+			+	+		SPL010
+				+			+				+							SPL011
+	+	+	+							+								SPL012
+	+	+	+				+			+								SPL013
+	+	+	+	+		+	+			+	+				+			SPL014
+	+	+	+							+		+						SPL015
+	+	+	+	+			+			+								SPL016
+	+	+	+	+	+		+			+	+				+			SPL017
+	+	+	+	+			+			+	+							SPL018
														+			+	SPL019
														+				SPL020
													+					SPL021