MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
KARAGANDY BUKETOV UNIVERSITY

«AGREED »

Director Republican state enterprise on the right of economic management
"Institute of mathematics and
mathematical modeling" of the committee of science of the ministry
of education and science of the Republic of Kazakhstan

_____ M.A.Sadybekov

«28» 03 20 22.

«AGREED»

Director NIS of Chemistry and Biology
directions of Karaganda

_____ R.M.Yakupov

«___»_____20___.

«APPROVED»

Chairman of the Board - Rector

_____ N.O.Dulatbekov

«26» 05 20 22.

EDUCATIONAL PROGRAM

7M01502–«Mathematics»

Level: Magistracy

Karaganda, 2022

Educational program 7M01502 - Mathematics was developed on the basis of:
- Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III "On Education"
- Law of the Republic of Kazakhstan dated July 11, 1997 No. 151-1. "On languages in the Republic of Kazakhstan"
- State obligatory standard of postgraduate education dated August 31, 2018 No. 604
- National Qualifications Framework dated March 16, 2016 by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations.
-Order of the Ministry of Education and Science of the Republic of Kazakhstan "On approval of the Rules for organizing the educational process on credit technology" dated October 2, 2018 No. 152
- Classifier of areas for training personnel with higher and postgraduate education dated October 13, 2018. No. 569.
- State obligatory standard of primary education. Approved by the Decree of the Government of the Republic of Kazakhstan dated August 23, 2012 No. 1080. Decree of the Government of the Republic of Kazakhstan dated August 15, 2017 No. 484.
- Professional standard "Teacher" (Appendix to the order of the Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken" dated June 8, 2017 No. 133)

Content:

Passport of the educational program:«7M05401-Математика»

1. Code and name of the educational program: "7M01502 - Mathematics"
2. Code and classification of the field of education, areas of study:7M01 Pedagogical sciences, 7M015 Training of teachers in natural sciences
3.Group of educational programs:M010 - Training of teachers of mathematics
4. Volume of loans:120ESTS.
5. Form of study: full-time
6. Language of instruction: Kazakh, Russian.
7. Awarded degree:''Master of Pedagogical Sciences" in the educational program "7M01502-Mathematics"
8. Type of OP:current
9. ISCED level(International Standard Classification of Education) - level 7;
10. NQF level(National Qualifications Framework) - Level 7;
11. Level according to the SQF (Industry Qualifications Framework) - level 7;
12. Distinctive features of the EP:No
13. Number of the application to the license for the direction of personnel training: License KZ83LAA00018495, Appendix No. 016, date of issue 07/28/2020
14. Name of the accreditation body and the period of validity of the EP accreditation: Independent Agency for Quality Assurance in Education NAOKO, SA-A No. 0156/4 dated May 27, 2019 Validity of the certificate: ftom May 27, 2019. - May 24, 2024
15. Purpose of the OP: The purpose of the educational program is to train mathematics teachers with fundamental knowledge, innovative approaches, research skills to carry out scientific, pedagogical, professional and practical activities in higher educational institutions, colleges, educational authorities, educational organizations, research centers.
16. Qualification characteristics of a graduate in EP''7M01502-Mathematics''
a) List of graduate positions:
Graduates of the educational program can work as teachers, lecturerscollege, university professors and researchers.
b) The scope and objects of professional activity of the graduate:
- secondary special educational institutions,
- higher education institutions,
- researchorganizations,
-state and non-state institutions of science and education (pedagogical schools, gymnasiums, lyceums, colleges, specialized schools of mathematics, etc.).

The objects of professional activity of undergraduates in the educational program "7M01502- Mathematics" in scientific and pedagogical trainingare:

- pedagogical processin colleges,
- pedagogical process in universities,
- methodological and administrative work in educational institutions;
- research work in areas related to the use of mathematics.

c) Types of professional activity of the graduate:

- pedagogical activity;
- research;
- administrative and managerial;
- expert advisory.

d) Functions of the professional activity of the graduate:

- educational,
- educating
- methodical,
- research,
- social and communicative.

17. Formulation of learning outcomes based on competencies

Type of competencies	Learning result code	Learning result (according to Bloom's taxonomy)
Behavioral skills and personal qualities: (Softskills)	LO1	Improves his intellectual and general cultural level; communicates on professional topics in the scientific community, freely uses Kazakh, Russian and English as a means of business communication; is able to adapt to new situations, uses accumulated experience, analyzes his capabilities.
	LO2	Expands and deepens his scientific worldview; uses in-depth knowledge of legal and ethical norms when assessing the consequences of his professional activity, when developing and implementing socially significant projects.
	LO3	Develops his creative abilities to achieve the chosen goals; strives for the development and growth of personal qualities; tolerably solves controversial, conflict situations; responsibly and actively participates in professional and social life; shows interest and love for pedagogical activity.
Digital competencies: (Digitalskills):	LO4	Possesses digital literacy in the use of digital technologies and tools for working with information, has awareness of the latest technologies and knowledge of innovative methods of work in the field of digital technologies; demonstrates readiness to implement information and communication and digital technologies in educational, professional and scientific activities.
	LO5	Studies programming, creates information and software using standard design solutions, develops software systems using modern computer technology.
	LO6	Applies the studied digital technologies, tools for working with information, standard programs, acquired knowledge and programming skills to conduct scientific research and solve professional problems using computer tools, constantly studies modern innovative methods of working in the field of digital technologies and uses them in practice, is aware of the needs of implementation digital technologies in scientific and professional activities.
Professional competencies: (Hardskills)	LO7	Analyzes and selects a method for solving the problem.
	LO8	Uses mathematical tools to build mathematical models of real processes and situations.
	LO9	Illustrates the skills of orientation in complex problems and finding optimal ways to solve them.
	LO10	Studies and organizes, and later applies modern mathematical programs for quick calculation of cumbersome applied and professional tasks.
	LO11	Compiles educational material with the help of modern teaching technologies and advanced didactic and methodological techniques.
	LO12	Uses a creative approach in professional activities. Develops the content and clarity of speech, its imagery and persuasiveness.
	LO13	Introduces the latest achievements of pedagogical and scientific discoveries into the educational process.
	LO14	Analyzes the curricula of basic and elective courses in various educational institutions.

18. Determination of modules of disciplines in accordance with the results of training

Learning result code	Name of the module	Name of disciplines	Volume (ECTS)
LO 1, LO3, LO 11, LO12	World view bases and pedagogy	History and philosophy of science	4
		Higher School Pedagogy	4
		Psychology of management	4
		Teaching practice	4
LO 1, LO2, LO 3, LO 11	Professional languages	Foreign language (professional)	4
		Professional foreign terminology in mathematics Technical literature in mathematics in a foreign language	5
LO 4, LO 5, LO 6, LO10, LO13	Modern questions of science and technique	High-tech innovative entrepreneurship Commercialization of the results of scientific and technical activities	5
		Innovatika in mathematics and education Online math teaching methodology	5
LO 4, LO5, LO6, LO10, LO13	Fundamental questions of higher mathematics and methodology	Fundamental questions of algebra and logic	4
		Fundamental questions of analysis	4
		Interactive methods are in organization of educational process (in English language)	4
LO4, LO 5 LO 6, LO7, LO10	Selected questions of the theory of models of differential equations and methods	Fundamentals of Group Theory (in English language) Rings and Modules (in English language)	4
		Methods of teaching mathematical subjects mathematics at higher school Modern mathematics and methods of teaching it	4
		Introduction to Model Theory Countable models of complete theories	5
		Equations in partial derivatives and their applications Equations in partial derivatives and their applications	4
		Theoretical bases of differential equalizations and calculable mathematics Integral equations and their applications	4
		Basic concepts of updated educational content Organization of distance learning in the school system	4
		Research practice	12
LO3, LO5, LO7, LO 10, LO13, LO 14	Research work	Research work of a master student, including an internship and a master´s thesis	24
LO 1, LO 8, LO 9, LO10, LO 12	Final examination	Writing and defending a thesis, graduation project or preparing and passing a comprehensive exam	12

19. Achievability matrix of learning outcomes

NN p/n	Name of the disciplines	Brief description of the discipline (30-50 words)	Qty Credits	Generated learning outcomes (codes)													
				LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO10	LO11	LO12	LO13	LO14
D1	History and philosophy of science	The purpose of the discipline is to study the general laws of scientific knowledge in the history and philosophy of science, in its historical development and in a changing socio-cultural context. Mastering the philosophy of science and methodology of science. The study of science as a cognitive activity and tradition, as a social institution and as a special sphere of culture.	4	+	+	+								+	+		
D2	Higher School Pedagogy	Purpose: formation of knowledge about the theoretical foundations of pedagogy, management of the learning process in higher education. Tasks: formation of ideas about the organization of the educational process at the university; teaching methodology and ethics of teachers; substantiation of the specifics of the organization of the educational process in higher education.	4	+	+	+								+	+		
D3	Psychology of management	The purpose of the course: is to form students systematic ideas about the psychological laws of management, to disclose the specifics of the use of social psychological knowledge in the structure of the Manager, in the development of skills analysis of socio-psychological principles underlying effective management. Course content: basic concepts, theoretical positions and actual problems of psychology of management; theoretical features of psychology of management; personal features of the head.	4	+	+	+								+	+		
D4	Foreign language (professional)	The purpose of the course: improving the level of proficiency of undergraduates in a foreign language to solve social and communicative tasks. Course content: mastering the skills of expressing opinions, argumentation of decisions and actions, analysis of socially significant processes and problems; free use of three main components: the sphere of communication and topics, socio-cultural cognition, linguistics.	4	+	+	+								+			
Cycle of basic disciplines Selectable Component																	
D5	Professional foreign terminology in mathematics	The purpose of studying the discipline- the purpose of studying the discipline is to obtain fundamental knowledge of professional foreign terminology in mathematics, as well as the formation of skills for their use in the professional field. The discipline studies professional foreign terminology in mathematics, analysis of terminology in scientific and technical style, characteristics of scientific and technical language in mathematics, aspects of scientific and technical translation, research of scientific translation in mathematics, equivalence in translation and its typology, basics of communication in the professional field in mathematics.	5	+	+	+								+			

Code	Discipline	Purpose	Credits				+	+	+				+			+	
	Technical literature in mathematics in a foreign language	The purpose of the discipline is to study the basics, characteristics, principles and aspects of studying and translating technical literature in mathematics, key grammatical phenomena and difficulties in studying and translating technical texts, features of technical and business style in mathematics, taking into account their oral and written forms.															
D6	High-tech innovative entrepreneurship	The purpose of the discipline is knowledge of modern approaches and trends in the management of strategic planning and management of knowledge-intensive industries, investment design, theoretical foundations of the organization of knowledge-intensive production, traditional methods and modern standards of production management.	5				+	+	+				+		D6	+	
	Commercialization of the results of scientific and technical activities	The purpose of the discipline is to determine the legal basis for the commercialization of the results of scientific and scientific-technical activities, legal mechanisms for the protection of intellectual property, the optimal organizational and legal form of a legal entity for a startup company. Training in technology, content and structure of the business plan for commercialization of the results of scientific and scientific-technical activities.															
D7		The priority task of the discipline is the knowledge of optimized, highly didactic methods of teaching mathematical disciplines using remote technologies, as well as the design of the process of mathematical development in various groups. In addition, the method of using online educational tools for a more interactive presentation of the material is explained.	5				+	+	+				+		D7	+	
	Online math teaching methodology																
	Innovatika in mathematics and education	This course covers the following sections: use of modern technologies on math classes, pedagogical innovative processes, theoretical bases of use of information technologies in educational process, historical aspects of a computerization of process of training, a problem of technologies in educational process, new technologies of training at math classes, a general characteristic of scientific technology, didactic design of computer technologies of training in mathematics, an electronic educational and methodical complex as the basis of technological training.															
— Cycle of major disciplines / University Component																	
D8	Fundamental questions of algebra and logic	The purpose of studying the discipline is to obtain fundamental knowledge of algebra and mathematical logic, as well as the formation of skills for their use in the process of scientific research. The course covers the following sections of algebra and logic: foundations of group theory, elements of the theory of rings, fields and some types of algebras, foundations of set theory, first-order predicate logic, axiomatic theories.	4				+	+	+				+			+	
D9	Fundamental questions of analysis	The purpose of the fundamental subject is to study such mathematical concepts as: metric spaces, completeness, the principle of compressive maps, compactness in metric space, linear, Euclidean spaces, continuous linear functionals,	4				+	+	+				+			+	

Code	Discipline	Description	Credits														
		the Hahn-Banach theorem in normalized space, conjugate spaces, weak convergence, resolvents, Frechet and Gato differentials.															
D10	Interactive methods are in organization of educational process (in English language)	In this discipline the main essence of interactive training, that is achievement of results in training and a way of achievement in continuous interaction, dialogue, communication, a reflection and ways of the organization of educational process speaks. The special form of the organization of cognitive activity in which the traditional typology of methods where the leading role is assigned to the developing types of activity of students is implemented is given.	4				+	+	+				+			+	

		Cycle of major disciplines Selectable Component															

Code	Discipline	Description	Credits														
D11	Fundamentals of Group Theory (in English language)	The purpose of studying the discipline is to familiarize undergraduates with the basic concepts and methods of the Group Theory, the formation of evidence-based and logical thinking in them. This course covers the following topics in Group Theory: groups, subgroups, normal subgroups and factor of a group, direct product of groups, transformation groups, free group, free products of groups, finite and finitely generated abelian groups, group homomorphisms and isomorphisms, factorization by special normal subgroups.	4				+	+	+	+	+			+		
	Rings and Modules (in English language)	The main goals of mastering the discipline: obtaining in-depth knowledge about rings and modules; formation of undergraduates' understanding of the relationship between the main achievements of the theory of rings and their influence on the study of module categories; development of skills for independent application of the studied methods. This course contains the following questions: the concept of a group, an Abelian group, a ring, a field, an ideal, a module over a ring, a submodule of a module, a submodule generated by a set, a homomorphism of modules, isomorphic modules, a direct sum and a direct product of a family of modules, the kernel of a homomorphism of modules, types of modules over a ring, the theorem on the homomorphism of modules.															
D12	Methods of teaching mathematical subjects mathematics at higher school	The purpose of mastering the discipline is to master the fundamental concepts of teaching series theory in higher educational institutions, to reveal the main subtleties of this subject, as well as a more in–depth study of criteria, properties, as well as some theorems of the course of mathematical analysis, which will help to reveal this subject into an appropriate component of the university course of mathematical education.	4				+	+	+	+	+			+		
	Modern mathematics and methods of teaching it	It is studied in order to form knowledge about the goals and objectives of the methodology of teaching mathematical disciplines in higher education. Moreover, the basics of higher school didactics, psychological and pedagogical foundations of methodological activity of a higher school teacher are revealed. Along with the fundamental didactic components, methods and forms of organization of teaching mathematics at the university are being mastered.															

Code	Discipline	Description																
D13	Introduction to Model Theory	The purpose of mastering the discipline is to teach undergraduates the methods of solving problems of the Model Theory and the corresponding thinking. This course covers the following issues of the Model Theory: languages, models, feasibility, theories; compactness theorem, completeness theorem, Lindenbaum's theorem; elementary equivalence; isomorphisms; elementary substructures; elimination of quantifiers, complete theories; type space, type omiting theorem, categorical theories; model chains, diagrams and embeddings, model completeness.	4				+	+	+	+	+			+			
	Countable models of complete theories	The purpose of studying the discipline is the formation of a common set-theoretic and logical-algebraic culture among undergraduates, as a scientific-theoretical and ideological-methodological basis for mastering the syntactic and semantic components of the formal languages of classical calculus. This course contains the main sections of the Model Theory, describing the behavior of countable models of complete theories. The following questions are considered: basic concepts of a first-order language, structures, language, theories, elementary extensions and compactness, quantifier elimination, types, type space, categorical theories, saturated structures, prime models.															
D14	Mathematical physics equations and thin appendix	This course is intended for the preparation of undergraduates in order to master the methods of mathematical physics and further application for solving applied problems. The course covers the following sections: classification of second-order partial differential equations, basic problems of mathematical physics, properties and partial solutions of linear equations, the method of separation of variables, the method of integral transformations, representation of the solution of the Cauchy problem through the fundamental solution.	5				+	+	+	+	+			+			
	Equations in partial derivatives and their applications	The theory of partial differential equations is closely related to the study of various physical processes. This includes questions that study phenomena occurring in thermodynamics, elasticity theory, electrodynamics, etc. In this course, the Dalembert method for solving the Cauchy problem, the Fourier method for solving boundary value problems of equations, fluctuations of the heat equation are considered. Laplace and Poisson equations. Dirichlet and Neumann problems. Laplace transform and its application.															
D15	Integral equations and their applications	This course begins with a presentation of the theory of Fredholm-type equations, then the theory of symmetric kernels is presented, some types of singular and nonlinear equations are considered, especially important for applications. Applications of the theory of integral equations to some problems of mechanics, mathematical physics and engineering are considered.	4	+					+				+				

	Theoretical bases of differential equaliza-tions and calculable mathematics	This course covers the following sections: mathematical models of physical processes; regional tasks for the differential equations; approximate methods of the solution of the differential equations; elements of the functional analysis approximate analytical methods; linear and nonlinear models of mathematical physics.																	
D16	Organization of dis-tance learning in the school system	The purpose of studying the discipline is to familiarize students with the con-cept of distance learning in the school system and the technical requirements for the organization of distance education. This course covers the following issues of distance education: pedagogical principles and methods of organizing the educational process in online and offline conditions, the main types of dis-tance learning (video lectures, webinars, conferences, chats) and methods of distance education.	4				+	+	+	+	+			+		
	Basic concepts of up-dated educational con-tent	The program of updating of education, that is way and the ways of activization which are carried out in the conditions of the created collaborative environ-ment, a method differentiation of training, a way of realization of intersubject communication is considered. Ways of use of ICT, dialogue training, methods of a research of process of assimilation of a training material are described.															

20. Coordination of the planned learning outcomes with the methods of teaching and evaluation within the module

Learning outcomes	Planned learning outcomes for the module	Teaching methods	Assessment methods
LO1	Improves his intellectual and general cultural level; communicates on professional topics in the scientific community, freely uses Kazakh, Russian and English as a means of business communication; is able to adapt to new situations, uses accumulated experience, analyzes his capabilities.	Dialog Round table Interactive lecture Project based learning Oral presentation Assessment Methods	Test control oral questioning Abstract preparation Essay writing
LO2	Expands and deepens his scientific worldview; uses in-depth knowledge of legal and ethical norms when assessing the consequences of his professional activity, when developing and implementing socially significant projects.	Discussion Round table Interactive lecture Oral presentation	Testing oral questioning Abstract preparation Essay writing
LO3	Develops his creative abilities to achieve the chosen goals; strives for the development and growth of personal qualities; tolerably solves controversial, conflict situations; responsibly and actively participates in professional and social life; shows interest and love for pedagogical activity.	Lecture Practice Analysis and problem solving Exercises	Test control Written control Colloquium Express survey
LO4	Possesses digital literacy in the use of digital technologies and tools for working with information, has awareness of the latest technologies and knowledge of innovative methods of work in the field of digital technologies; demonstrates readiness to implement information and communication and digital technologies in educational, professional and scientific activities.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement task
LO5	Studies programming, creates information and software using standard design solutions, develops software systems using modern computer technology.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement and graphic task
LO6	Applies the studied digital technologies, tools for working with information, standard programs, acquired knowledge and programming skills to conduct scientific research and solve professional problems using computer tools, constantly studies modern innovative methods of working in the field of digital technologies and uses them in practice, is aware of the needs of implementation digital technologies in scientific and professional activities.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Independent work
LO7	Analyzes and selects a method for solving the problem.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement and graphic task
LO8	Uses mathematical tools to build mathematical models of real processes and situations.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement and graphic task
LO9	Illustrates the skills of orientation in complex problems and finding optimal ways to solve them.	Interactive lecture Practical work	Test control Written control

		Analysis and problem solving Exercises	Colloquium Presentation
LO10	Studies and organizes, and later applies modern mathematical programs for quick calculation of cumbersome applied and professional tasks.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Independent work
LO11	Compiles educational material with the help of modern teaching technologies and advanced didactic and methodological techniques.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement task
LO12	Uses a creative approach in professional activities. Develops the content and clarity of speech, its imagery and persuasiveness.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement task
LO13	Introduces the latest achievements of pedagogical and scientific discoveries into the educational process.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Settlement and graphic task
LO14	Analyzes the curricula of basic and elective courses in various educational institutions.	Interactive lecture Practical work Analysis and problem solving Exercises	Test control Written control Colloquium Independent work

21. Criteria for assessing the achievability of learning outcomes

CodesofLO	Criteria
LO1	Knows: Kazakhy, Russiany and English at a professional level for business communication. And foreign language to the extent necessary for obtaining professional information from foreign sources and elementary communication at the general and professional level;
	Can: use a foreign language in interpersonal communication and professional activities; freely and adequately express their thoughts in conversation and understand the interlocutor's speech in a foreign language; conduct written communication in a foreign language, compose business letters; is capable of active social mobility; andadapts to new situations, re-evaluation of accumulated experience, analysis of their capabilities.
	Owns: freely speaks Kazakh, Russian and English. to express their thoughts and opinions in interpersonal, business and professional communication in a foreign language; various speech skills (reading, writing, speaking, listening) in a foreign Language
LO2	Knows: useoBarb new knowledge and skills in practical activities, including in new areas of knowledge that are not directly related to the development of a foreign language. field of activity
	Can: independently expands and deepens their scientific worldview
	Possesses: the development and growth of personal qualities; subjectivity, tolerance, attentiveness and tolerance in resolving disputes, conflict situations;sensitivity, responsibility and accuracy in professional and public life; andinterest and love for teaching
LO3	Knows: its strengthse and weaknessesof the sidesin your of its character; withovershoots the strengths and weaknesses of the sides of its character. and eliminates weakones.
	Can: развивать your creative abilities to achieve your chosen goals; developsarpersonal your personale qualities; subjectivity, tolerance, attentiveness and tolerance in resolving disputes and conflicts;sensitivity, responsibility and accuracy in professional and public life; andinterest and love for teaching
	Owns:he has the methodological foundations of modern science, is able to adapt natural science knowledge and skills to the goals and objectives of mathematical education, professional and general scientific terminology
LO4	Knows: about the latest technologies and innovative methods of working in the field of digital technologies
	Can: demonstrate information and communication and digital technologies in educational, professional and scientific activities.
	Proficient in: digital literacy in the use of digital technologies and tools for working with information
LO5	Knows: software systems using modern computer technology
	Can: create information and software using standard design solutions
	Proficient in: programming skills
LO6	Knows: standard programs, tools for working with information
	Can: use the acquired knowledge and programming skills to conduct scientific research and solve professional problems using computer tools
	Owns: modern innovative methods of work in the field of digital technologies and uses them in practice
LO7	Knows: Methods and forms of organization of teaching mathematics in higher education institutions and problem solving
	Can: Анализирп andselect the methods for solving the problem
	Owns: OCHOBThe basics of pedagogical control in higher education
LO8	Knows: ncoconstruction of mathematical modelsof real processes
	U meet: use the knowledge and methods of modern model theory
	Owns: mathematical tools for building mathematical models of real processes and situations
LO9	Can: find оптимальныюр пути solutions to complex problems
	Owns: skills of orientation in complex problems and finding optimal ways to solve them
LO10	Knows: moderne technologies, pedagogical innovation processes, theoretical foundations of the use of information technologies in the educational process

		Can: Uses state-of-the-art math programs to quickly calculate cumbersome applied and professional tasks
		Owns: Theoreticallymu foundationsamu, RO 11 knows the basics of applying information technologies in the educational process
LO11	moderne teaching technologies and advanced didactic and methodological techniques	
	Can: use moderne teaching technologies, didactic and methodologicale material in the educational process	
	Owns: навык abilityRO 12 has the following skills in teaching and composing educational material using modern teaching technologies and advanced didactic and methodological techniques	
LO12	I useomart a creative approach in my professional activities. Ready to interact with colleagues in the team	
	Can: Develops the content and clarity of speech, its imagery and persuasiveness.	
	Owns: advancedmu knowledgeof legal and ethical norms in assessing the consequences of their professional activities, in the development and implementation of socially significant projects	
LO13	Knows: methods and technologies, features of presenting the results of thelatest достижений scientific achievements	
	Can: Why do the едрять latest achievements of pedagogical and scientific discoveries contribute to the educational process?	
	Owns: features of presentation of the results of pedagogicalon and scientific activities in the educational process	
LO14	Knows: study programs of basic and elective courses in various educational institutions	
	Can: implement thee curriculum of basic and elective courses in various educational institutions	
	Owns: basica provisionsof the theory and methods of teaching mathematics in specific pedagogical conditions	

22. The graduate model of the educational program
Graduate Attributes:

- Deep professional knowledge in their field of study
- Interest in mastering trends in education and science
- Ability to collaborate in the professional community
- Autonomy in seeking opportunities for professional and personal development
- Sociability
- Tolerance and good manners
- Academic integrity
- Willingness to participate in solving state tasks and strategies of Kazakhstan

Types of competencies	Description of competencies
1. Behavioral skills and personal qualities: (Softskills)	Improves and develops its intellectual and general cultural level Fluent in Kazakh, Russian and English as a means of business communication; capable of active social mobility Adapts to new situations, reassessing accumulated experience, analyzing own capabilities Independently acquires with the help of information technology and uses in practice new knowledge and skills, including in new areas of knowledge that are not directly related to the field of activity, expands and deepens his scientific, worldview Uses in-depth knowledge of legal and ethical standards in assessing the consequences of his professional activities, in the development and implementation of socially significant projects Capable of adapting to new situations, reassessing accumulated experience, analyzing own capabilities Aware of his strengths and weaknesses of character. Improves strengths and eliminates weaknesses. Develops his creative abilities to achieve the chosen goals. Strives for the development and growth of personal qualities Objectivity, tolerance, attentiveness and tolerance in resolving controversial, conflict situations Care, responsibility and accuracy in professional and social life. Interest and love for teaching
2. Digital competencies: (Digital skills):	Digital literacy for the use of digital technologies and information tools to meet personal, educational and professional needs, teamwork in a digital environment, taking into account the basics of security, ethical and legal norms Algorithmic thinking and programming: from formalized problem setting and solution algorithm development to the use of modern programming tools. Data analysis and artificial intelligence methods: from using mathematical methods and models to extract knowledge to solving professional problems and developing new approaches. Organizes professional excellence in teaching mathematics and physics using innovative information and communication educational technologies, can design and implement computer systems, use network resources in work.

3. Professional competencies: (Hardskills)	Analyzes and selects a method for solving the problem. Owns mathematical tools for building mathematical models of real processes and situations. Has the skills to navigate complex problems and find the best ways to solve them Uses modern mathematical programs for fast calculation of cumbersome applied and professional problems. She has skills in compiling educational material using modern teaching technologies and advanced didactic and methodological techniques. Uses a creative approach in professional activities. Develops the content and clarity of speech, its figurativeness and persuasiveness Introduces the latest achievements of pedagogical and scientific discoveries into the educational process. Implements curricula of basic and elective courses in various educational institutions. Ready to interact with colleagues, to work in a team

Developers:

Members of the working group:

Head of the Department "Mathematical Analysis and Differential Equations" _____ G.Sh.Iskakova

Master, Senior Lecturer, Department of Mathematical Analysis and differential equations" _____ K.S. Shaukenova

1st year master student _____ M.T.Omarov

The educational program was considered by the faculty council from _28. 03. 2022y_ Protocol No. _6/1_

The educational program was considered at a meeting of the Academic Council from _28. 04. 2022y_ Protocol No. _5_

The educational program was reviewed and approved at a meeting of the University Board from _26. 05. 2022y_ Protocol No. _12_

Member of the Board - Vice-Rector for Academic Affairs T.Z.Zhusipbek

Director of the Department of Academic Affairs G.S.Akybayeva

Dean of the Faculty D.A. Kazimova

EDUCATIONAL PROGRAM DEVELOPMENT PLAN
CODE – NAME

The purpose of the Plan is to contribute to improving the quality of the conditions for the implementation of the educational program, taking into account the current requirements of the labor market and the achievements of modern science.

Target indicators

№	Indicators	Unit of measurement	2022-2023 (in fact)	2023-2024 (plan)	2024-2025 (plan)	2025-2026 (plan)
1	**Human resources development**					
1.1	Increase in the number of teachers with academic degrees	Number of people	1	1	1	1
1.2	Advanced training in the teaching profile	Number of people	5	5	5	5
2	**Promotion of the EP in the ratings**					
2.1	IQAA	Position				
2.2	IAAR	Position				
2.3	Atameken	Position	1			
3.	**Development of educational and scientific-methodical literature, electronic resources**					
3.2	Training manuals	Number	1	-	1	-
3.3	Methodological recommendations/instructions	Number	-	1	-	1
3.4	Electronic textbook	Number	-	1	-	1
3.5	Video/audio lectures	Number	1	2	2	2
3.6	Other	Number	-	2	2	2
4.	**Development of educational and laboratory facilities**	Number	-	2	2	2
4.1	Purchase of software products	Number				
4.2	Purchase of equipment	Number				
4.3	Other	Number				
5.	**Updating the content of the EP**					
5.1	Updating the learning outcomes and the list of	Year	-	-	+	-

		Year				
	disciplines taking into account the requirements of the labor market, scientific achievements, professional standards					
5.2	Introduction to the EP of academic disciplines in foreign languages*	Year	-	-	-	+
5.3	Introduction of new teaching methods	Year	-	+	+	+
5.4	Opening of joint/two-degree program on the basis of the EP	Year	-	-	-	-
5.5	Other	Year				

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