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Registration data

Application type	Updating of EP in the Registry	Status	Approved
Date of getting the status	13.12.2024 16:46	Sent to rework by the expert (count)	0
Sender	6710	Registration number	6B01500191

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Higher and Postgraduate Educational Programs

☐ Project EP ☐ Participant of project EP

Field of education *

6B01 Pedagogical sciences

☐ Interdisciplinary EP

Direction of personnel training *

6B015 Training of teachers in Natural science subjects

Group of educational programs *

B009 Teacher training in mathematics

Educational program *

6B01502 Mathematics-Informatics

Curriculum *

Математика-Информатика (бакалавриат)

Kazakh language

Russian language

English language

EP purpose *

Training of bachelor's degree with professional competencies in the field of modern pedagogy, theory and methods of teaching mathematics and computer science, knowing modern information technologies, capable of applying theoretical and practical knowledge to identify and solve research problems in the field of education

EP type *

New EP

Level on NQF *

6

Level on SQF *

6

EP distinctive features

No

Degree to be conferred *

Bachelor

Period of study *

4 ▾

Volume of the credits *

240

Language of education *



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English

Professional Standard for EP *

Exists

+ Add

Nº	Name of professional standard
1	Teacher (Repealed by order of the Minister of Education of the RK dated 03.06.2025 No. 133)

Professional standards (career standards)

Professional standard has been used at developing EP

Date of approval EP on the Academic Council *

10-04-2024



☒Existence of the annex to the license for the direction of personnel training

The license number on the direction of training *

KZ36LAA00018662 (018)

☐The training format is online

☒EP accreditation existence

Atlas of new professions *

не предусмотрено

Regional standard *

не предусмотрено

The formed educational outcomes

Nº	Educational outcome
1	In Kazakh In Russian In English Әлеуметтік, саяси, мәдени, психологиялық ғылымдар саласындағы іргелі білім мен дағдылар негізінде олардың қазақстандық қоғамды жаңғырту мен цифрландырудағы рөлі контексінде
2	In Kazakh In Russian In English Оқытуда инновациялық және ақпараттық технологиялар мен әдістерді қолданады, инклюзивті білім берудің ерекшеліктерін бағалайды, оқушылардың күтілетін нәтижелерін критериалды
3	In Kazakh In Russian In English Байқалатын фактілер мен құбылыстарды математикалық әдістермен талдайды және синтездейді, іргелі математикалық ұғымдарды білу мен түсінуді көрсетеді, классикалық және
4	In Kazakh In Russian In English Даму процестерінің физиологиялық және функционалдық ерекшеліктерін, тәрбиеленушілер мен білім алушылардың жеке білім беру қажеттіліктерін ескере отырып, орта білім берудің



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5	In KazakhIn RussianIn English Бағдарламалаудың негізгі технологиялары мен STEAM технологияларын қолданады, алгоритмдерді әзірлеудің әртүрлі әдістерін қолдана отырып есептерді шеше білу және
6	In KazakhIn RussianIn English Бағдарламалық қамтамасыз ету мен аппараттық қамтамасыз етудің өзара әрекеттесу принциптерін талдайды және синтездейді, компьютердің аппараттық құралдарының негіздерін,
7	In KazakhIn RussianIn English Математикалық білім беруді құру моделін әзірлейді, математика мен информатиканы оқытудың принциптерін, әдістері мен технологияларын бағалайды. Әр түрлі есептерді шешу әдістемесін
8	In KazakhIn RussianIn English Құқықтық, экономикалық, іскерлік, өндірістік, экологиялық, мәдениеттік ортадағы және сыбайлас жемқорлыққа қарсы саясаттағы әлеуметтік маңызды құбылыстар мен процестерді
9	In KazakhIn RussianIn English Математиканың классикалық бөлімдерінің білімі мен түсінігін көрсетеді, математикалық ойлау әдістерін, математикалық терминологияны, кәсіби деңгейде типтік есептерді шешу тәсілдерін

Data on disciplines

Nº	Name of discipline	Short description of discipline	Cycle	Component	Credits			
						ON1	CR	ON:
1	Methods of scientific research	The goal is to form knowledge about the principles, technologies, practical methods and techniques of conducting scientific research based on modern achievements of scientists. Forms the basic foundations of scientific culture and ethics, flexible perception of scientific texts, skills of effective application of acquired knowledge in planning and organizing research work, the ability to analyze and summarize research results.	GED	EC	5	☐		☐
2	Ilyastanu	The purpose of the discipline is to develop a deep-thinking personality with high aesthetic taste, appreciating literature, art, traditions, culture and language of the Kazakh people through a deep and comprehensive study of the works of Ilyas Zhansugurov. Forms an understanding of the importance of the works of Ilyas Zhansugurov in the development of the Kazakh literary language; skills of intellectual and creative thinking, the ability to cherish the values of national and spiritual heritage.	GED	EC	5	☒	High	☐



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3	Fundamentals of financial literacy	The formation of a comprehensive view of the laws of the functioning of the economy, obtaining a business education aimed at acquiring applied competences in various business areas, reveals the features of creating and successfully running their own business.	GED	EC	5	☐		☐
4	Basics of law and anti-corruption culture	The aim is to familiarize students with the main branches and institutions of law, the basics of an anti-corruption culture, as well as the laws of the emergence, development and functioning of the state and law. The course forms the skills of an anti-corruption culture and a high level of theoretical knowledge about the main functions of law in the state and society, its impact on the development of law-based state, civil society.	GED	EC	5	☒	Norm	☐
5	Ecology and life safety basics	Purpose – to form knowledge on the basics of ecology and life safety, allowing to analyze environmental processes, assess the socio-ecological consequences of anthropogenic activities, methods and technologies of protection in emergency situations. Develops skills to assess the impact of environmental factors on human health; predict environmental processes for planning and implementing measures to improve life safety; make decisions in adverse environmental and emergency situations, taking into account the possible consequences of accidents, catastrophes, natural disasters.	GED	EC	5	☐		☐
6	Economics and entrepreneurship	The purpose is to familiarize students with the economic problems of modern society, the formation of economic thinking and gaining knowledge in the field of theoretical foundations and practical skills in the field of entrepreneurship. It is focused on the formation of students' comprehensive understanding of the laws of the functioning of the economy, obtaining business education aimed at acquiring applied competencies in various fields of entrepreneurial activity, reveals the features of creating and successfully running their own business.	GED	EC	5	☐		☐

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7	Algebra and Number Theory	The elements of introduction to algebra and number theory are considered. Sections of elements of set theory, complex numbers, vector spaces and determinants are studied. The types of matrices and the main operations on them, the basic concepts of a system of linear inhomogeneous equations are considered. Particular attention is paid to the study of algebraic structures based on the axiomatic method.	BD	UC	5	☐		☐
8	Analytical geometry	The discipline is aimed at studying the concepts and methods of analytic geometry and elements of vector algebra. The main content of the discipline is the study of lines and surfaces of the 2nd order, the study of their equations, linear and affine transformations of the plane. Attention is paid to the use of analytical geometry methods for solving problems of school geometry.methods for solving problems of school geometry.	BD	UC	5	☐		☐
9	Technology of criteria assessment	Examines the place and role of assessment in the educational process in mathematics; models of the technology of criterion assessment, its principles, stages and assessment tools; age criteria for evaluating educational results in mathematics; pedagogical tasks of the portfolio, functions and composition of the portfolio; The application of criterion assessment based on Bloom's taxonomy is studied.	BD	UC	5	☐		☒
10	Basics of programming	In the course of studying the discipline, general ideas about programming languages, the basics of algorithmization, the basic structures of the algorithm are considered. Students also master the syntax of the Python language, data types, work with linear, branching, cyclic operators, functions with lists. He learns to solve problems of different levels of complexity.	BD	UC	6	☐		☐
11	Database management systems and Big-Data	The course of introduction to databases introduces the history of structured data processing systems, approaches to information processing, development of data models and data management systems. The basis of the course is the study and use in typical situations of SQL tools for data processing in SQL-DBMS. Performing practical tasks in the course involves the use of MySQL database.	BD	UC	6	☐		☐



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12	Discrete mathematics and mathematical logic	The discipline studies the basic concepts of the mathematical logic of the statement, formulas, their true values, identically true, false and satisfiable formulas, equivalent formulas, bringing formulas with the help of equivalent transformations to normal forms. Examples of the application of ideas and methods of modern discrete mathematics and mathematical logic for solving practical problems are presented.	BD	UC	6	☐	☐
13	Differential equation	The discipline is aimed at studying the basic concepts and theorems of the theory of differential equations. Types and types of differential equations, methods of solution and their application are studied. Methods for solving differential equations of the first and second orders, as well as systems of differential equations, are discussed. Practical examples of the application of differential equations in various fields are considered.	BD	UC	5	☐	☐
14	Inclusive education	Examines the theoretical foundations of the organization of inclusive education, historical aspects of the development of inclusion, models of inclusive education. Studies technologies of inclusive education, drawing up an individual educational route, planning the educational process taking into account the special educational needs of children, organizing tutoring practice in an inclusive learning environment	BD	UC	5	☐	☒
15	Mathematical Analysis 2	This course outlines the basic concepts of the theory of sequences, limits, differential and integral calculus, the theory of series, improper integrals, integrals that depend on parameters, the basics of vector analysis, elements of field theory. Covers aspects of the general theory of mathematical analysis, basic concepts and definitions, formulations and proofs of the main theorems.	BD	UC	5	☐	☐
16	Mathematical Analysis 1	This course outlines the basic concepts of the theory of sequences, limits, differential and integral calculus, the theory of series, improper integrals, integrals that depend on parameters, the basics of vector analysis, elements of field theory. Covers aspects of the general theory of mathematical analysis, basic concepts and definitions, formulations and proofs of the main theorems.	BD	UC	5	☐	☐



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17	Object-oriented programming	In the course Object-oriented programming students have the opportunity to learn the basics of OOP, get acquainted with the basic concepts and basics of the implementation of OOP in Java, prepare for further passage of more complex programming courses.	BD	UC	5	☐		☐
18	Physiology of school children development	Considers general patterns of age-related growth and development of children and adolescents, the formation of their physiological functions. Studies the interaction of the child with the external environment, hygienic standards and requirements aimed at protecting and strengthening health, harmonious development and improvement of the functional capabilities of the body of children and adolescents	BD	UC	5	☐		☐
19	Pedagogy	Examines the latest teaching methods and technologies within the updated content of secondary education. Studies methods of scientific analysis, forecasting, planning and management of the pedagogical process. Forms theoretical ideas about pedagogy as a branch of humanitarian knowledge and the interaction of subjects of the educational process	BD	UC	5	☐		☐
20	Theory and methods of educational work	Examines the methods of organizing educational work and describes the laws, the essence and content of the processes of education, studies the features and principles of education within the updated content of secondary education. It is aimed at forming the interest of the future teacher for subsequent pedagogical self-education and professional self-improvement	BD	UC	5	☐		☐
21	Probability theory and mathematical statistics	The discipline is aimed at studying the elements of combinatorics, probability theory and mathematical statistics. The main content of the course is devoted to the study of random events and random variables. A significant place is given to elements of mathematical statistics. Examples of applying theoretical knowledge to solving probabilistic and statistical problems are presented.	BD	UC	6	☐		☐



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22	Elementary mathematics	The discipline is aimed at studying elements of set theory, real and complex numbers, polynomials of one and several variables, algebraic expressions, algebraic equations and inequalities. Trigonometric, exponential and logarithmic formulas, equations and inequalities are considered. Attention is paid to planimetric and stereometric topics. Various methods of solving problems of a school mathematics course are studied.	BD	UC	5	☐		☐
23	Programming in C#	The main volume of the material is devoted to the distinctive (in comparison with other so-called "managed" languages) features of the C# language: motivation of their appearance, patterns of application and typical mistakes made when using them. Asynchronous I/o and its integration into the language through the async / await construct are considered. The features of the code generated by different syntactic sugars (foreach, using, etc.) are studied.	BD	EC	5	☐		☐
24	Methodical basis for solving algebraic problems	The discipline is aimed at studying methodological issues related to the solution of algebraic problems. This discipline is associated with such sciences as elementary mathematics, pedagogy, logic, psychology, history of mathematics. Materials on interdisciplinary integration and interdisciplinary connections are considered, as well as the methodology for their use in the process of teaching mathematics at school.	BD	EC	5	☐		☐
25	Methodological foundations for solving geometric problems	The discipline is aimed at studying the methodological features of teaching geometry in high school. Considers the basic concepts and axioms of planimetry, the concepts of convex figures, quadrangles, polygons and polyhedra. The method of calculating the areas and volumes of three-dimensional bodies is studied: a prism, a pyramid, a cylinder, a cone, a ball, etc. Various methodological techniques and methods for solving geometric problems are discussed.	BD	EC	5	☐		☐
26	General physics Course	Examines the main sections of mechanics, molecular physics and thermodynamics, electricity and magnetism. Methods of solving problems in physics based on the physical laws of natural phenomena are discussed. The methods of performing numerical and experimental studies, the ability to process and analyze the results are described.	BD	EC	5	☐		☐



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27	Fundamentals of artificial intelligence	The discipline is aimed at studying the basic concepts, methods and algorithms that underlie the creation and application of artificial intelligence. As part of this course, students will learn the theoretical foundations of machine learning, neural networks, natural language processing algorithms, and computer vision. They will also get acquainted with the ethical, social and legal aspects of the application of artificial intelligence in various areas of life.	BD	EC	5	☐		☐
28	Modern physics	Considers the role of a holistic view of the modern physical picture of the world and unified methods of its study. Describes the ways of applying theoretical knowledge in solving practical problems to explain physical phenomena.	BD	EC	5	☐		☐
29	Robotics at school	The course is designed to develop skills such as: to carry out spatial design, modeling, programming and automatic control of the robot; system thinking, analysis for the selection of engineering solutions and solutions to complex problems arising in the design of robots; building a sufficiently constructive format of interaction with children for the implementation of interesting projects.	BD	EC	5	☐		☐
30	Creating of mobile applications	When studying the discipline, students will learn: design and develop application design, develop a mobile application for Android. Students will learn the basic steps of mobile app development, as well as learn how to create and test mobile apps through the MIT app inventor visual development environment.	BD	EC	5	☐		☐
31	Robots and their constructions	The course is devoted to the modeling of robots and the creation of control algorithms. The purpose of this course is to apply theoretical knowledge from the field of physics and mathematics to solve a practical management problem. The course is based on the use of a widespread robotic kit and open software tools. The applied use of mathematics allows you to solve complex problems.	BD	EC	5	☐		☐
32	Programming in C++	The course aims to study programming in the C++ language that teach us how to make the algorithms and to effectively solve problems from real life. Students of the course will gain fundamental knowledge of how computers store and operate data on the example of projects of varying complexity: from simple console games to real automated solutions.	BD	EC	5	☐		☐



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33	Web programming	When studying the discipline, students will learn: methods of designing a website as a static information system; methods of processing and editing digital images; client-side software tools used to create web pages; server-side software used to create web pages, databases, virtual server.	BD	EC	5	☐		☐
34	Academic writing	The discipline introduces students to the necessary concepts, terms and modern concepts of the basic principles for creating academic texts, such as an essay, abstract, annotation, report, etc. Forms the skills of correctly compiling a bibliographic description. The requirements of the international academic community for the design and structure of scientific research in various genres, such as a scientific article, a thesis, etc., are considered. The discipline is aimed at developing students' scientific thinking and acquiring research skills.	PD	UC	4	☒	Norm	☐
35	Methods of teaching computer science	Contains the basic methods of teaching for the training of teachers of computer science within the updated content of secondary education; the relationship of teaching methods of computer science with other Sciences; basic regulatory documentation on the organization, planning and provision of the educational process in computer science.	PD	UC	5	☐		☒
36	Methods of teaching mathematics	The subject of methods of teaching mathematics, the purpose of teaching mathematics, learning principles, the content of teaching mathematics within the updated content of secondary education. Methods of teaching mathematics, innovative methods of teaching mathematics, tools and forms of teaching mathematics are studied. Attention is paid to the method of introduction of mathematical concepts specifically –inductive method, methods of teaching mathematics through the problem. The structure of the lesson, the basic requirements for the lesson, the classification of independent work.	PD	UC	5	☐		☒



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37	Methods of teaching computer graphics at school	The course examines all production procedures that are associated with the prepress workflow: formation Photoshop-system, the fundamentals of competent work in Photoshop, color settings, correction of tones and color correction, digital darkroom, sharpness, spot color and duplex, bar graphics, scanning, image input, the technique of image editing, output methods, media and web.	PD	UC	5	☐	☒
38	Workshop on solving algebraic problems	The discipline is aimed at studying methods for solving algebraic problems in the school course of mathematics and their application in future professional activities. The solutions of mathematical problems are studied in standard and non-standard ways. Students master the skills of solving various algebraic problems of the school course of mathematics of increased complexity.	PD	EC	5	☐	☐
39	Research and project activities in educational institution	This discipline considers the methodology of scientific research. Methods of research activity. Stages of the research process. General characteristics of research methods and their classification General scientific research methods. Methods of empirical research. Methods of theoretical research.	PD	EC	5	☐	☒
40	Workshop on solving geometric problems/	The discipline is aimed at studying the properties of geometric figures on the plane and in space, the concepts of the axioms of planimetry and stereometry, spatial figures. Various methods for solving geometric problems in the school course of mathematics and their application in future professional activities are studied.	PD	EC	5	☐	☐
41	Methods for solving Olympiad problems in computer science	This discipline is designed for detailed analysis of the structure of the Olympiad problems and analysis of previous Olympiads. Students will develop the skills of solving and developing multi-level Olympiad tasks in Informatics at the school stage of the Olympiad.	PD	EC	5	☐	☒
42	Computer software	The discipline is aimed at developing students' competencies in using software and acquiring skills in using packages of applied and system computer programs to solve practical problems.	PD	EC	3	☐	☐



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43	Computer System Architecture	Associated with the study of one of the sections of modern computer science and is designed to form ideas about the basic concepts of the architecture of a personal computer (PC). A computer science teacher needs to know the basics of the computer hardware, its basic technical characteristics and functionality.	PD	EC	3	☐	☐
44	Methodology and technology of distance education	The article deals with methodological issues of distance learning and e-learning methods, examines the features of the organization of the educational process using remote educational technologies, taking into account the achievements of science, modern educational practice and advanced pedagogical experience.	PD	EC	5	☐	☒
45	Methods for solving Olympiad problems in mathematics	The discipline covers aspects of designing various methods, techniques and techniques for solving Olympiad problems in mathematics. The systems of exercises on the application of various technologies and methods for solving Olympiad problems in mathematics are presented. The issues of organization of international and republican Olympiads on the subject of mathematics are considered.	PD	EC	5	☐	☐
46	Information technologies in teaching mathematics	The purpose of the discipline is to get acquainted with the main directions of innovative processes in mathematical education (school and university), understanding their essence, history and current state, understanding the cultural potential of innovative processes in mathematical education, mastering the skills to develop and implement methodological models, methods, technologies and techniques of teaching mathematics, the ability to analyze the results of the process of their use in educational institutions of various types.	PD	EC	5	☐	☒
47	Innovative methods in teaching mathematics	The content of the basic concepts and methods of actions that make up innovative approaches in teaching and teaching mathematics according to the updated content of education is considered. Methodological techniques and teaching technologies are explained that allow students to manage their activities when studying specific content issues, taking into account the characteristics of school-age children.	PD	EC	5	☐	☒



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48	Development of functional literacy of secondary school students	The discipline is aimed at the formation of functional literacy of students. Considers the main directions of the National Action Plan for the development of functional literacy of schoolchildren in the framework of the updated content of secondary education. Pedagogical technologies are being studied for the formation of functional literacy of schoolchildren in mathematics lessons. The process of planning and designing mathematics lessons aimed at developing mathematical and natural science literacy is considered.	PD	EC	5	☐	☐
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EO attainability coefficient: 77,93 %

	State	Status assignment date and time	General expert op
1	Expertise	13.12.2024 16:45	

Basis for updating of EP *

Техническое обновление. Добавлено: наличие аккредитации ОП