

**MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF
KAZAKHSTAN
M.AUEZOV SOUTH KAZAKHSTAN UNIVERSITY**



EDUCATIONAL PROGRAM

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OF KAZAKHSTAN

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«APPROVED»
Chairman of the board -
Rector _____
Doctor of historical sciences,
Academician, Kozhamzharova D.P.
« _____ » _____ 2023

EDUCATION PROGRAMME

6B01530 – Computer science

Registration Number	6B01500259
Code and Classification of Education	6B01-Pedagogical Science
Code and Classification of Areas of Training	6B015 - Teacher training of in science subjects
Group of educational programs (EP)	B009- Mathematics teacher training
Type of EP	acting
ISCE level	6
NQF level	6
IQF level	6
Language learning	Kazakh, Russian
The complexity of EP	240 credits
Distinctive features of EP	-
Partner University (JEP) -	-
University partner (DDEP) -	-

Shymkent, 2023.

Drafters:

Name	Position	Sign
Zhaidakbayeva L.K.	Head of Department of Computer Science	
Tazhibay A.	Master's student of the MEP-22-6nk group	
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Nurmukhanbetova G.K.	Director of «KaztilDamu» LLP, The educational center	

The EP was considered in the direction of training «B011-computer science teacher training» at a meeting of the academic committee, Minutes № ____ «_____» _____ 202 y.

Chairman of the Committee _____ Urazbayev K.

The EP was considered and recommended for approval at Educational-methodical meeting of M. Auezov SKU
Minutes № _____ « » _____ 202 y.

Chairman of the EMM _____ Abisheva R.D.

The EP was approved by the decision of the Academic Council of the University
Minutes № _____ « » _____ 2023 y.

CONTENT

1.	Concept of the program.....	5
2.	Passport of the Educational program.....	7
3.	Competencies of the graduate of EP.....	9
3.1	Matrix of correlation of learning outcomes for the EP as an whole with the formed competencies of the modules.....	10
4.	Matrix of the influence of disciplines on the formation of learning outcomes and information about labor intensity.....	11
5	Summary table on the volume of loans disbursed in the context of EP modules...	34
6.	Learning strategies and methods, monitoring and evaluation.....	36
7	Educational and resource support of the EP.....	37
	Approval Sheet.....	38
	Appendix 1. Review from the employer	
	Appendix 2. Expert opinion	
	Appendix 3. Professional standard	

1. CONCEPT OF THE PROGRAM

The mission of the University University Values

We are focused on generating new competencies, training a leader who translates research thinking and culture.

- Openness—open to change, innovation and cooperation.
- Creativity – generates ideas, develops them and turns them into values.
- Academic freedom – free to choose, develop and act.
- Partnership – creates trust and support in a relationship where everyone wins.
- Social responsibility – ready to fulfill obligations, make decisions and be responsible for their results.

Graduate Model

- Deep subject knowledge, their application and continuous expansion in professional activity.
- Information and digital literacy and mobility in rapidly changing conditions.
- Research skills, creativity and emotional intelligence.
- Entrepreneurship, independence and responsibility for their activities and well-being.
- Global and national citizenship, tolerance to cultures and languages.

The uniqueness of the educational program

1. The choice of modern innovative forms and methods of teaching, learning strategies in teaching mathematics and computer science.
2. Explanation of the fundamental foundations of the sections of mathematics and computer science.
3. Planning of training sessions taking into account the principles of integration and continuity of training at all levels of education.
4. Formation of students' readiness to organize and conduct research and practical activities in the field of mathematics, computer science, teaching methods, introduction of innovative technologies.
5. Development of didactically integral electronic learning complexes in mathematics and computer science.

Academic Integrity and Ethics Policy

The University has taken measures to maintain academic integrity and academic freedom, protection from any kind of intolerance and discrimination:

- Rules of academic integrity (Minutes of the Academic Council No. 3 dated 30.10.2018);
- Anti-Corruption Standard (Order No. 373 n/a dated 27.12.2019).
- Code of Ethics (Protocol of the Academic Council No. 8 dated 31.01.2020).

Regulatory and legal framework for the development of EP

1. Law of the Republic of Kazakhstan "On Education";
2. Standard rules of activity of educational organizations implementing educational programs of higher and (or) postgraduate education, approved by Order of the Ministry of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595 with amendments and additions dated December 29, 2021 No. 614
3. State obligatory standards of higher and postgraduate education, approved by order of the Ministry of Education and Science of the Republic of Kazakhstan dated July 20.2022 No. 2;
4. Rules for organizing the educational process on credit technology of

education, approved by order of the Ministry of Education and Science of the Republic of Kazakhstan dated April 20, 2011 No. 152;

5. Qualification directory of positions of managers, specialists and other employees, approved by order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated December 30, 2020 No. 553.

6. Guidelines for the use of ECTS.

7. Guidelines for the development of educational programs for higher and postgraduate education, Appendix 1 to the order of the Director of the Center for the Bologna Process and Academic Mobility No. 45 o / d dated June 30, 2021

Organization of the educational process

- Implementation of the principles of the Bologna Process
- Student-centered learning
- Availability
- Inclusivity

Quality assurance of the Educational program

- Internal quality assurance system
- Involvement of stakeholders in the development of the EP and its evaluation
- Systematic monitoring
- Updating the content (updating)

Requirements for applicants

They are established according to the Standard Rules for admission to training in educational organizations implementing educational programs of higher and postgraduate education by Order of the Ministry of Education and Science of the Republic of Kazakhstan No. 600 dated 31.10.2018.

Conditions for the implementation of educational programs (EP) for persons with disabilities and special educational needs(SSN)

For students with SEN (special educational needs) and persons with disabilities (PSI), tactile PVC tiles, specially equipped toilets, a mnemonic diagram, and shower bars have been installed in educational buildings and student dormitories. Special parking spaces have been created. Crawler lift installed. There are desks for people with limited mobility (PLM), signs indicating the direction of movement, ramps. In the educational buildings (main building, building No. 8) there are 2 rooms with six working places adapted for users with disorders of the musculoskeletal system (DMS). For visually impaired users, the SARA™ CE Machine (2 pcs.) is available for scanning and reading books. The library website is adapted for the visually impaired. There is a special NVDA audio program with a service. The JIC website <http://lib.ukgu.kz/> is open 24/7.

An individual differentiated approach is provided for all types of classes and in the organization of the educational process.

2. PASSPORT of the Educational Programm

Purpose of the EP	Preparation of the popular teacher in mathematics and computer science in the framework of the updated educational content.
Tasks of the EP	<ul style="list-style-type: none">-the formation of socially responsible behavior in society, an understanding of the significance of professional ethical norms and adherence to these norms;- providing basic undergraduate training that allows you to continue learning throughout life, to successfully adapt to changing conditions throughout their professional careers;- ensuring the conditions for acquiring a high general intellectual level of development, mastering literate and developed speech, a culture of thinking and the skills of scientific organization of labor in the field of education using computers and information and communication technologies;- creation of conditions for intellectual, physical, spiritual, aesthetic development to ensure the possibility of their employment in the specialty or continuing education at subsequent levels of education.
Harmonization of EP	<ul style="list-style-type: none">• 6th level of the National Qualifications Framework of the Republic of Kazakhstan;• Dublin descriptors of the 6th level of qualification;• 1 cycle of a Framework for Qualification of the European Higher Education Area);• 6th Level of European Qualification Framework for Life long Learning).
Connection of EP with the professional sphere	<p>Professional standards “Teacher” (order No. № 500 of 15.12.2022), “Database administration”, “Software development”.</p> <p>The sectoral framework of qualifications in the field of education, approved by Minutes No. 2 of the meeting of the sectoral tripartite commission on social partnership and regulation of social and labor relations under the Ministry of Education and Science of the Republic of Kazakhstan dated November 23, 2016.</p>
Name of the degree awarded	After successful completion of this OP, the graduate is awarded the degree: Bachelor of Education according to the educational program "6B01530 - Computer Science"
List of qualifications and positions	Bachelors in the OP "6B01530 - Computer Science" can hold primary positions of a trainee teacher in mathematics and computer science in the centers of pedagogical excellence, departments of education using computers and information and communication technologies, interactive technologies without presenting work experience requirements in accordance with qualification requirements. Qualification directory of positions of managers, specialists and other employees approved by the Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated May 21, 2012 No. 201-o-M.
Field of professional activity	Is the field of education
Objects of professional activity	educational institutions of state and non-state funding; schools, lyceums, gymnasiums; organizations of science: scientific, research centers in the field of mathematics, applied mathematics, pedagogy, psychology and teaching methods; management organizations: state governing bodies, departments of education; organizations of various forms of ownership using methods of mathematics and computer science, applied mathematics and computer science.

Subjects of professional activity
Types of professional activity

The educational process in the unity of its value-oriented targets, content, methods, forms and results;

educational;
- organizational and methodical;
- experimental research;
- organizational and managerial;
- social and pedagogical;
- educational.

Learning outcomes

- LO 1** - Communicate freely in a professional environment and society in Kazakh, Russian and English.
- LO 2** - Demonstrate natural science, mathematical, social, socio-economic and engineering knowledge in professional activities, methods of mathematical data processing, theoretical and experimental research, regulatory documents and elements of economic analysis.
- LO 3** - apply mathematical methods and computing equipment to solve practical problems; carry out a comparative analysis of parameters; use the methods and basic ideas for solving olympiad problems in computer science, problems of increased complexity; technologies of local and corporate computer networks, principles of administration; as well as application protocols of INTERNET services.
- LO 4** - To form judgments and analyze the social significance of their future profession, the role of the teacher in modern society; as well as the structural components of the educational process in the modern school;
- LO 5** - Apply methods and means of knowledge, learning and self-control of intellectual development, raising the cultural level, professional competence; and also to use the gained knowledge in practice.
- LO 6** - application of digital technologies in education, development and programming of mobile applications and robotics LEGO, Arduino.
- LO 7** - To possess knowledge in the field of pedagogy and psychology, to apply theoretical knowledge in professional activities with regard to criteria-based assessment, to manage information, to carry out comprehensive monitoring based on psychological and pedagogical diagnosis, analysis and synthesis, to be capable of pedagogical reflection, to strive for continuous improvement of research culture; to realize the professional duty of a teacher, responsibility for the results of pedagogical activity.
- LO 8** - design the direction of correctional impact in an inclusive education depending on the type of impaired child development.
- LO 9** - be able to apply to solving applied problems, basic information processing algorithms, perform an assessment of the complexity of algorithms, program, create an information system, create neurons in an artificial intelligence system, have skills in designing robotics, evaluate the accuracy of the results obtained and test programs.
- LO 10** - evaluate your own qualifications and their relevance, rethink the accumulated practical experience, change, if necessary, the type and nature of your professional activity
- LO 11** - Use research and entrepreneurial skills in uncertainty.
- LO 12** - Work effectively individually and as a member of the team, correctly defend your point of view, adjust your actions and use different methods

3. COMPETENCES OF THE GRADUATE OF EP

SOFT SKILLS. Behavioral skills and personality qualities	
SS 1. Competence in managing one's own literacy	SS1.1. The ability of self-learn, self-develop and constantly update their knowledge within the chosen trajectory and in an interdisciplinary environment. SS1.2. The ability to express thoughts, feelings, facts and opinions in the professional field. SS1.3. The ability for mobility in the modern world and critical thinking.
SS 2. Language competence	SS2.1. The ability to build communication programs in the state, Russian and foreign languages. SS2.2. The ability for interpersonal social and professional communication in the conditions of intercultural communication.
SS 3. Mathematical Competence and Competence in the field of Science	SS3.1. The ability and willingness to apply the educational potential, experience and personal qualities acquired during the study of mathematical, natural science, technical disciplines at the university to solve professional problems.
SS 4. Digital competence, technological literacy	SS4.1. The ability to demonstrate and develop information literacy through the mastery and use of modern information and communication technologies in all areas of their lives and professional activities. SS4.2. The ability to use various types of information and communication technologies: Internet resources, cloud and mobile services for searching, storing, protecting and disseminating information.
SS 5. Personal, social and academic competencies	SS5.1. The ability for physical self-improvement and focus on a healthy lifestyle to ensure full-fledged social and professional activities through the methods and means of physical culture. SS5.2. Knowledge of the Rules of pedagogical ethics. SS5.3 The ability to build a personal educational trajectory throughout life for self-development, career growth and professional success. SS5.4. The ability to successfully interact in a variety of socio-cultural contexts during study, work, home and leisure.
SS 6. Entrepreneurial competence	SS6.1. The ability to be creative and entrepreneurial in a variety of environments. SS6.2. The ability to work in a mode of uncertainty and rapidly changing task conditions, make decisions, allocate resources and manage your time. SS6.3. The ability to work with consumer requests.
SS 7. Cultural awareness and ability to express yourself	SS7.1. The ability to show worldview, civil and moral positions. SS7.2. The ability to be tolerant of the traditions and culture of other peoples of the world, to have high spiritual qualities.
PROFESSIONAL COMPETENCIES (HARDSKILLS).	
Theoretical knowledge and practical skills specific to this field	PC-1.The ability to master knowledge in the field of pedagogy, psychology, pedagogical innovation, pedagogical technologies, to be able to innovate, strive for excellence in pedagogical skills, show initiative and diligence; the ability to master knowledge in the field of psychological and pedagogical sciences, to analyze the significance of human development and the physiology of the development of schoolchildren; their application in psychological and pedagogical sciences.pedagogical practice.
	PC-2. Knowledge of the basics of mathematical analysis and modeling

	<p>methods, theoretical and experimental research; readiness to use the main directions of school mathematical education with updated content; scientifically substantiate the mathematical concepts of the course that are studied at school. To use basic knowledge of computer science in research, to apply modern information technologies in their teaching activities: the construction of computer training programs, their use in professional activities.</p>
	<p>PC-3. Knowledge of the theoretical foundations and methods of teaching mathematics and computer science in the conditions of specialized training; the ability to quickly and correctly make a decision in non-standard situations; use modern programming methods in developing effective techniques and technologies for finding a unique algorithm for solving applied problems in terms of efficiency and capabilities.</p>
	<p>PC-4. The ability to demonstrate professional values (commitment to the profession of a teacher, citizenship, compliance with professional ethics, responsibility, proactivity). Performs his professional activity on the basis of respect and responsibility, honesty and fairness.</p>

3.1 Matrix of correlation of learning outcomes for the EP as an whole with the formed competencies of the modules

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
KC 1			+	+	+	+	+					
KC 2	+	+										
KC 3					+	+	+	+	+	+	+	
KC 4					+	+	+	+	+	+		+
KC 5		+	+	+	+	+	+	+			+	+
KC 6									+	+	+	+
KC 7											+	
SC 1			+	+								
SC 2					+	+	+	+	+			
SC 3					+	+	+	+	+			+
SC 4		+					+			+		

4. MATRIX OF THE INFLUENCE OF DISCIPLINES ON THE FORMATION OF LEARNING OUTCOMES AND INFORMATION ABOUT LABOR INTENSITY

Module name	CYCLE		Component Name	Brief course description (30-50 words)	Number of credits	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
Socio-ethnic Development	GED	UC	Ecosystem and Law	Purpose: formation and development of ecological thinking of the student, as well as the formation of students' ability to act in the direction of improving the quality of the environment in professional and household activities, to offer their own ways and mechanisms for regulating the relationship between nature and society Content: Introduction. The concept of ecology. The logical structure of ecology. Tasks of ecology. Basic concepts and terms of ecology. The concept of habitat and environmental factors. Basic ideas about the adaptations of organisms. Limiting environmental factors. Fundamentals of V.I. Vernadsky's teaching about the biosphere. The biosphere as a global ecosystem. Needs, living environment and human health. The problem of population. The problem of urbanization. Ways to solve population problems. The main sources of environmental law of the Republic of Kazakhstan. Environmental regulation of impacts on OPS. Basic environmental standards.	5							✓					✓
	BD	UC	Military robotics	Skills of using "e government " and public services , including obtaining the necessary e-government services. Services, filing applications, obtaining certificates, obtaining licenses, registration , registration, and other operations.	4						✓		✓	✓			

	BD	UC	STEM technologies in education	Knowledge of the philosophical foundations of the STEM method to increase the creative activity of students, the use of knowledge based on integrated subjects, connected professional needs in life.							✓			✓	✓	✓	
Fundamentals of Psycho-Pedagogical Sciences	BD	UC	Fundamentals of General and Age Psychology	Purpose: to consolidate the basic theories and concepts on the problems of mental development at various stages of ontogenesis. The formation of students' systemic ideas makes it possible to in-depth assimilation of psychological characteristics of personality in ontogenesis. Content: Knowledge of psychological and pedagogical assistance in the organization of the pedagogical process in various educational institutions. To familiarize with the basic laws of age-related anatomical and physiological development of preschool and school-age children. To carry out the study of the psychological characteristics of students and classroom groups to solve professional problems; to take into account the individual psychological characteristics of the individual when designing the educational process.	4	✓		✓			✓	✓	✓				
	BD	UC	STEM in natural sciences	Creation of computer models for displaying and studying physical, biological and economic objects and processes based on critical analysis of their regularities; synthesis and evaluation of information presented in the form of texts, tables, databases, multimedia in the programming environment; development of mathematical models, physical processes	4						✓			✓	✓	✓	
Basics of Pedagogical Skills	BD	UC	Inclusive Education	Purpose: The concept of inclusive education. Models of inclusive education. Conditions for organizing inclusive education for various categories of children with disabilities. Inclusion of children with sensory impairments in the educational process. Content:- Considers models and legal bases of the organization of inclusive education. -Studies the conditions for organizing inclusive education for various categories of children with	4			✓	✓			✓	✓				

				disabilities. Characterizes the inclusion of children with sensory, motor, intellectual disabilities, emotional and volitional spheres in the educational process. Introduces the organization of psychological and pedagogical support for children with disabilities. Instills critical thinking skills in managing inclusive processes in education														
Communication and Physical Training/	BD	UC	Professionally Oriented Foreign Language	Purpose: formation of foreign language communicative competence for effective, independent communication of students in socio-cultural, academic and professional spheres in a multicultural and multilingual environment. Content: The discipline examines the basic concepts and terms of computer science, the content of the computer science course in English; techniques for annotating, referencing and translating literature in the specialty; discusses the use of special professionally-oriented material in the computer science lesson; analyzes tests in English; provides examples of the use of English in professional activities	3	✓	✓											
Communication and Physical Training	BD	UC	Professional Kazakh (Russian) Language	Purpose: formation of future specialists' skills of cultural, official, professional communication in the Kazakh language in the field of education. Content: Provision of	3	✓	✓											

				professionally-oriented language training of a specialist who is able to adequately build communication in professionally significant situations and who knows the norms of the language for special purposes. Professional terminology as the main feature of scientific style. Scientific vocabulary and scientific constructions in the educational and professional and scientific and professional spheres. Production of scientific and professional texts. Fundamentals of business communication and documentation in the framework of future professional activity															
Fundamentals of Psycho-Pedagogical Sciences	BD	UC	Physiology of Schoolchildren Development	Purpose: to teach future teachers to know the age-related anatomical and physiological features of the body of children and adolescents and to give an idea of the ways of forming a healthy lifestyle. Content: the subject of physiological development of students studies the patterns of age formation and development of the child's body, its functions. It is closely related to the subjects of general hygiene, pedagogy and psychology. general patterns of growth and development of children and adolescents; knowledge of the physiology and hygiene of analyzers and age characteristics; familiarity with the protection, strengthening and training of the health of children and adolescents. the construction of educational and work load during classes at school, taking into account the age characteristics of the development of the body of students	4				✓			✓	✓						
Basics of Pedagogical Skills	BD	UC	Pedagogy and Cyberpedagogy	Purpose: to equip future teachers with professional competencies on the theoretical and methodological foundations of modern pedagogical science, the technology of organizing the pedagogical process, the formation of students' readiness for the design and construction of the educational process based on information and communication technologies based on the laws and scientific principles of cyber pedagogy. Contents:	5			✓			✓							✓	

				Genesis of pedagogical science, laws and principles of the holistic pedagogical process. Fundamentals of the theory of education and didactics. Problems of modern school management. Scientific principles and patterns of cyber pedagogy, methodology and technology of educational process management based on information and communication technologies, methods of distance learning and blended learning.															
Fundamentals of Psycho-Pedagogical Sciences	BD	UC	Theory and Methodology of Educational Work	Purpose: formation of professional and pedagogical competence of future teachers in the knowledge of the basics of the educational process, technology of organization and implementation of educational activities Content: Dialectics of the process of education. Characteristics of normative documents on education. The problem of the content of the educational system in a modern school. Criteria determining the level of the formed educational system. Special ways of teaching cooperation: role-playing games with a business specific purpose, psychotechnical games, situations of choice, sketches. Methods of educational interaction. Development of student self-government. Organizational skills of the teacher. Mastery of pedagogical stimulation. Methods of individual and group educational work with students.	4				✓			✓	✓					✓	✓
Socio-ethnic Development	BD	EC	Abay Studies	Purpose: To familiarize students with the work of Abai. Abai as a reformer of Kazakh poetry. - master the methodology and basic concepts of describing the science of Abai studies; Content: The study of the life and creative heritage of Abai can begin with Alikhan Bukeikhanov, Akhmet Baitursynuly, Mirzhakypadulatuly. The article analyzes the work of the great poet, writer, public figure, founder of modern Kazakh written literature, philosophy, social, aesthetic views of poetry in Kazakh poetry, contribution to the development of poetic language and a	3	✓												✓	✓

				wide range of research works on musical heritage.														
Fundamentals of mathematical and natural sciences	BD	EC	Algebra and Geometry	Purpose: - Mastering the basic parts of mathematical analysis. - providing theoretical knowledge of the mathematics course - quality assurance, depth of knowledge. Content:The discipline presents an introduction to analysis, indefinite and definite integral, concepts and differential calculus of functions of many variables, methods for calculating double, triple, curved surface integrals. The basic concepts of numerical, functional and power series are given	4			✓		✓			✓					
Information security and network technology	BD	EC	Network Security	Objective: to achieve the following learning outcomes: formation of basic principles of organization and functioning of computer and telecommunication systems for various purposes; Formation of knowledge for the construction, configuration and administration of computer systems and networks. Contents:-Describe the equipment routers. -Explain how switching works in the network of small and medium-sized businesses. - Configure monitoring tools available for small and medium-sized business networks. - configure the initial settings on the network device.	5					✓			✓	✓				
Basics of programming and databases	BD	EC	High-Level Programming Languages	Purpose: to give the student knowledge and practical skills in algorithmization, development, debugging and testing of programs Content:Use practical programming skills; - opportunities of modern information technologies and development trends. Create a high-level programming project	6								✓	✓			✓	
Information security and network technology	BD	EC	Computer Systems and Networks	Objectives: to achieve the following learning outcomes: the formation of students" fundamental knowledge on the basics of data transmission network software and basic network protocols, as well as in the development of skills for the application of this knowledge; Content:Discuss components and models of the Internet and other computer networks. Principles and structure of IP addressing and	5								✓	✓			✓	

				fundamentals of concepts, media and Ethernet operations. Explain network technologies, explain how devices access local and remote network resources, implement basic network communication													
Socio-ethnic Development	BD	EC	Service to Society	Purpose: formation of socially significant skills and competencies among students based on the assimilation of academic programs, carrying out socially useful activities related to the disciplines studied at the university Content: The concept and meaning of Service learning, the history of the formation and development of the concept of Service Learning. The key components of Service Learning, socially useful activities in children and youth, the organization of the volunteer movement in the world and Kazakhstan practice, the profile orientation of Service Learning. International practice of learning through socially useful activities. General principles and methodology for the development of social projects. Methods of analysis of implemented social projects.	3	✓										✓	✓
	BD	EC	Actual Problems and Modernization of National Awareness	Purpose: restoration of spirituality deformed during the tsarist and Soviet periods, the formation of a creative personality based on the modernization of the public consciousness of youth Content: The current problems of modern youth are studied. The system of values in the youth policy of the Republic of Kazakhstan. Youth as an object of state policy. The Law of the Republic of Kazakhstan "On State Youth Policy in the Republic of Kazakhstan". Youth policy in the modern world is considered.	3	✓										✓	✓
Basics of programming and databases	BD	EC	Databases and Information Systems	Purpose: to study the theoretical foundations of modern databases, the principles of database development and tools for working with them, to familiarize students with the necessary knowledge and skills of working with databases in various information systems. Content: Discuss the basics of design, development and	5				✓				✓			✓	

				programming. In addition, we will also discuss advanced and new topics (stored procedures, data warehouses, and so on). Demonstrate knowledge on the theory, methods and technologies of relational databases and their development; Create Internet-oriented database systems; Understand application problems and current trends in database technologies. Create a software project for the selected DBMS															
	BD	EC	Creating and Managing Databases	Objective: to review the principles, theories and practices in the field of data organization and management for practical application. Content: Well-designed database systems are at the heart of the provided and functionally rich Web-based applications that are revolutionizing enterprises today. Demonstrate: -developing logical database schemas in the third normal form using entity relationship diagrams for simple, defined systems; -use a database management system -create data model schemas using entity relationship diagrams (ER).	5								✓		✓			✓	
Personal computer software in education	BD	EC	Multimedia and Internet Technology	Purpose: formation of students" scientific ideas about the essence and functions of modern multimedia systems and technologies, their place and role in the system of information systems and technologies, mastering practical skills of effective use of multimedia technologies in solving real practical problems Content: The technologies of creating Internet projects using HTML5, JavaScript, etc., software for creating Internet applications are considered.Be able to:- implement multimedia technologies in the educational process	4					✓	✓			✓					
Personal computer software in education MM	BD	EC	Basics of Multimedia Technologies	Purpose: future teachers should work with multimedia technologies when teaching computer science. The means of pedagogical programs, electronic textbooks, to create Web design sites, they must use animation, zaikovye, interactive multimedia, visual, pedagogical capabilities of Macromedi Flash programs. Content: Means of	4					✓	✓			✓					

				pedagogical programs, electronic textbooks, to create Web designs, Web sites, they must use animation, science, interactive multimedia, visual, pedagogical capabilities of Macromedi Flash programs. To create Flash movies in HTML format, should export any graphic editors on the internet.															
Socio-ethnic Development	BD	EC	Muhtar Studies	Purpose: to master the methodology and basic concepts of the description of the science of Mukhtar studies; - to know the leading directions of literary science; to possess various techniques of interpretation of Mukhtar's works of art; Content: The life and work of M.O.Auezov is studied; the creative laboratory of the writer, his biography in the context of creativity is analyzed; as the creator of the science of Abai studies; the researcher zhyr "Manas". Acquaintance with M. Auezov as a prominent public figure. The literary heritage of M. Auezov in world and Eastern literature is analyzed. Feelings of patriotism and love for the motherland are instilled.	3	✓												✓	✓
Basics of programming and databases	BD	EC	Operating Systems	Goal:mastering the concepts of operating systems, the basic principles of designing and building operating systems; Content:Demonstrate - the principle of computer control, systems and networks; -assignment of the components of the OS; -principles of building control programs for computing processes, queries, data and resources of computers, systems and networks; - problems and directions of development of system software; - problems and directions of development of programming technology; - about the main methods and means of software design automation, about methods of organizing work in software development teams.	5					✓	✓	✓							
Hardware and software of a personal electronic	BD	EC	System Administration of Operating Systems	Goal:mastering the concepts of operating systems, the basic principles of designing and building operating systems; Content:-formation of basic ideas, knowledge and skills in the field of organization of the functioning of	5												✓	✓	

computer				modern operating systems, namely, the skills of creating and using effective software for managing computing resources in multi-user operating systems. -obtaining basic, theoretical knowledge in the field of the functioning of modern operating systems, the principles of the organization of input / output and multi-program work, and the acquisition of practical OS administration skills.						✓							
Socio-ethnic Development	BD	EC	Foundations of Anticorruption Culture	Purpose: Formation of an anti-corruption worldview, strong moral foundations of personality, civic position, stable skills of anti-corruption behavior. Content: Overcoming legal nihilism, formation of the foundations of the legal culture of students, in the field of anti-corruption legislation. Formation of conscious perception, attitude to corruption. Moral rejection of corrupt behavior, corrupt morality, ethics. Mastering the skills necessary to counter corruption. Creating an anti-corruption standard of conduct. Anti-corruption propaganda, dissemination of ideas of legality, respect for the law. Activities aimed at understanding the nature of corruption, awareness of social losses from its manifestations, the ability to defend one's position in a reasoned manner, to look for ways to overcome manifestations of corruption.	3							✓				✓	✓
Fundamentals of mathematical and natural sciences	BD	EC	Linear Algebra	Purpose: to introduce students to the range of problems of classical and modern algebra; to clarify the role of algebraic concepts in relation to other mathematical disciplines; Content: Solve problems by section: -At the heart of the theory of matrices and determinants; -Solving systems of linear equations; -Vector algebra; - Algebraic line and surface of the 1st and 2nd order; - Linear spaces. - understand and create mathematical arguments; - think clearly, consistently and logically in order to analyze mathematical problems;	4		✓							✓			

Basics of programming and databases	BD	EC	Programming in Arduina	Purpose: to introduce students to the principles and methods of development, design and programming of controlled electronic devices based on the Arduino computing platform Content: The study of visual programming technology allows you to build the interface of a future program from special components that implement the desired properties. The Arduino language is based on a programming language	6							✓	✓		✓				
	BD	EC	Programming Language C#	Purpose: students get acquainted with the basics of programming in the C# environment. The formation of students" knowledge of algorithmization, their implementation in the C# programming language, the formation of skills and abilities to build programs for complex mathematical problems using the basic operators of this programming language, the content: Demonstrate knowledge of practical approaches in programming, as well as mastering the capabilities of the C# language with a focus on solving object-oriented problems. Apply knowledge of programming in a high-level language with#; --works in various programming environments using C# Create a programming project in C#	5								✓		✓		✓		
	BD	EC	Programming Language C++	Purpose: to study the classification of programming languages, data types, operations, operators of the C programming language, to be able to program in C++; Content: Demonstrate: --formation of students" general methodological foundations and practical skills in program development. -an idea of the general methodological foundations of program development; -understanding the structure of algorithms; --knowledge of basic data types and programming language design; Create a C++ programming project.	6									✓		✓		✓	
	BD	EC	Programming in PHP	Goal: Teach how to use modern languages to create web applications, such as HTML, CSS, JavaScript, DHTML, PHP, Perl. Learning programming techniques in PHP. To	5								✓		✓		✓		

				teach how to create web services, websites, portals using these technologies. Content: Learning programming techniques in PHP. PHP is a programming language created for generating HTML pages on a web server and working with databases. Currently supported by the overwhelming majority of hosting providers. Included in LAMP-a common set for creating websites (Linux, Apache, MySQL, PHP (Python or Perl)). Create a PHP programming project														
	BD	EC	Programming in Python	Goal: is to develop programming skills in Python. To know how to quickly create both prototypes of software systems and software systems themselves, helps in the integration of software for solving scientific and production tasks Content: Mastering the Python language allows you to quickly create both prototypes of software systems and software systems themselves, helping to integrate software support for solving scientific and production tasks. To choose methods of algorithmic modeling and methods of algorithmic modeling and analysis of mathematical tasks; Create a Python programming project	6						✓		✓					
Basics of Pedagogical Skills	PD	UC	Workshop of Special Disciplines	Purpose: formation of skills and abilities to solve problems of increased complexity. Content: Tasks of increased complexity of the section "Programming", Tasks of increased complexity of the section "Theory of algorithms", Tasks of increased complexity of the section "Coding of information", Tasks of increased complexity of the section "Algebra of logic", Tasks of increased complexity of the section "Number systems". Use practical programming skills; - opportunities of modern information technologies and development trends.	4			✓	✓	✓				✓				

Methodical fundamentals of teaching computer science	PD	UC	Methods of Teaching and Assessment in Informatics	Goal:It is the theoretical and practical training of students in the field of modern teaching methods and the basic course of computer science at the primary school and the profile course at the senior level, the development of creative potential necessary for teaching computer science in the conditions of differentiation of schools. Content: "Methods of teaching computer science" consist in the methodical preparation of a future computer science teacher of secondary educational institutions, who should be ready to carry out training and education of students taking into account the specifics of the taught subject; to promote socialization, the formation of a general culture of personality, conscious choice and subsequent development of professional educational programs;	6			✓	✓	✓				✓		
	PD	EC	Fundamentals of 3D Modeling	Goal:Formation and development of students" intellectual and practical competencies in the field of creating spatial models mastering the elements of the basic pre-professional skills of a specialist in three-dimensional modeling. demonstrate algorithms of three - dimensional modeling and software . Content:Formation and development of students" intellectual and practical competencies in the field of creating spatial models mastering the elements of the basic pre-professional skills of a specialist in three-dimensional modeling. Practice a positive attitude to three-dimensional modeling algorithms and an idea of the main tools of 3D modeling software.	4						✓		✓		✓	
Hardware and software of a personal	PD	EC	Automatic Control Theory	Purpose: to teach students modern methods of description, analysis, synthesis and modeling of control systems and to gain practical skills for solving specific problems of quality research and design of automatic control systems	4						✓		✓		✓	

electronic computer				Content: "The theory of automatic control" (TAU) is the study of the general principles of the construction and functioning of automatic control systems (ACS), as well as the assimilation of the basic methods of analysis and synthesis of ACS. -analyze the stability and quality of ACS -use modern computer technology to solve automatic control problems														
Methodical fundamentals of teaching computer science	PD	EC	Fundamentals of academic writing	The purpose of the subject is to master the principles of creating written texts of an academic nature (essays, abstracts, articles, theses, etc.) and mastering the skills of writing them. Content: Accumulated experience in bibliographic description of printed publications and electronic resources, independent search, registration of individual written works, public presentation and discussion of scientific papers, skills in conducting discussions and defending their position.	4	✓											✓	✓
Information security and network technology	PD	EC	Robotics in Education	Objective: to master the basic techniques and design of robots related to perception, planning, responses. designing robots for various tasks; using sensors and motors in robotics systems; Contents: Introduction to ARDUINO Robotics. A lantern with your own hands. control of simple robots; Sound sensor (microphone). LED control button. Buttons work. Introduction to the photoresistor. Photoresistor LED. LED potentiometer. LCD display with I2C module. Temperature and humidity sensor + LCD. Sudatchik + pump. The system of self-government. Design and programming of electric vehicles and automobiles.	4					✓			✓	✓				

Personal computer software in education	PD	EC	Digital Technologies in Education	Objective: to understand the structure and organization of digital educational environments, their importance in modern education, as well as to master the principles, methods, means and tools of their design and implementation. Content: The ability to use modern digital technologies in education; able to develop, implement and maintain information systems for various purposes in educational institutions with the necessary competencies, able to generate and implement innovative ideas in their professional activities; apply digital learning tools in a dynamically changing environment	5						✓			✓					
Fundamentals of mathematical and natural sciences	PD	EC	Analysis of One Variable Function	Purpose: - Mastering the basic parts of mathematical analysis. - providing theoretical knowledge of the mathematics course - quality assurance, depth of knowledge. Content: The discipline presents an introduction to analysis, indefinite and definite integral, concepts and differential calculus of functions of many variables, methods for calculating double, triple, curved surface integrals. The basic concepts of numerical, functional and power series are given	4		✓			✓				✓					
Personal computer software in education	PD	EC	Design Interface and	Purpose: computer graphic editors, animation capabilities of the program creation of graphic objects Photo Shop, CorelDRAW when creating design, electronic textbooks and pedagogical software. Content: Introduction to interface design and interaction experience. prototyping, interaction design and information architecture. Interface design, navigation and information design. Visualization, graphic design. Demonstrate algorithmic and mathematical							✓		✓		✓				

				foundations of constructing realistic scenes; issues of implementing computer graphics algorithms using computers;														
Fundamentals of mathematical and natural sciences	PD	EC	Introduction to Computational Mathematics	Objective: to form students with sufficient theoretical knowledge and practical skills on the use of computational mathematics methods in production activities, including their software implementation on computers. Content: Demonstration of general scientific basic knowledge of natural sciences, mathematics and computer science, understanding of basic facts, concepts, principles of theories related to applied mathematics and computer science; Demonstrate knowledge of the theory of numerical methods; -Use the studied methods to solve computational problems.	4					✓							✓	
	PD	EC	Computer Methods of Approximate Calculation	Objective: to form students' understanding of approximate methods of solving applied problems, methods of mathematical modeling, sources of errors and methods of accuracy of results Content: Demonstrate the skills of applying numerical methods to solve practical problems using computers. -know the disciplines of the mathematical and natural science cycle; -apply in practice methods of mathematical analysis, theory of differential equations, probability theory and mathematical statistics	4													✓
Personal computer software in education	PD	EC	Engineering Graphics	Purpose: To study the laws and rules for the execution of drawings with graphic information of various types and content, the basics of graphical representation of information, methods of graphical modeling of geometric objects, rules for the development and design of design documentation, graphical models of phenomena and processes. Content: studies the laws and rules for the execution of drawings with graphic information of various types and content, the basics of graphical representation of	4							✓					✓	

				information, methods of graphical modeling of geometric objects, rules for the development and design of design documentation, graphical models of phenomena and processes.															
Information security and network technology	PD	EC	Methodology of Organizing Project Activities in Computer Science and Robotics	The purpose of teaching the discipline is to familiarize with organizational, technical, algorithmic and other methods and means of protecting computer information, with legislation and standards in this area, with modern cryptosystems. Content: The purpose of the study is based on the generalization and systematization of scientific and methodological works in the field of preparing students for project activities and works on educational robotics projects to offer elements of the content of methodological training of future computer science teachers to organize project activities in the field of robotics.	4			✓		✓								✓	
Information security and network technology	PD	EC	Theoretical Problems of Informatics	Purpose: Formation of systematic knowledge in the field of theoretical foundations of computer science. Contents: Mathematical apparatus and methodology of programming and modern computer technologies. Storage, processing and transmission of information. Analyze and conduct a qualified expert assessment of the quality of electronic educational resources and software and technological support for their implementation in the educational process	4		✓	✓	✓										
Methodical fundamentals of teaching computer science	PD	EC	Theoretical Fundamentals of Computer Science	Objective: To master the concept of the terminological base of modern theoretical computer science, theories and methods of research of formalized mathematical, information-logical and logical-semantic models, structures and processes of presentation, collection and processing of information. Content: The processing team is the basis for the functioning of information. Use mathematical apparatus, programming methodology and modern computer technologies to solve practical problems of obtaining, storing, processing and transmitting information. Analyze and conduct a qualified expert	4		✓	✓	✓										

				assessment of the quality of electronic educational resources and software and technological support for their implementation in the educational process														
Personal computer software in education	PD	EC	Computer Graphics Programming Technology	Purpose: computer graphic editors, animation capabilities of the program creation of graphic objects Photo Shop, CorelDRAW when creating design, electronic textbooks and pedagogical software Content: Demonstrate skills in working with graphics libraries and in modern graphics packages and systems Selection of methods and means of computer graphics and geometric modeling; fundamentals of vector and raster graphics; theoretical aspects of fractal graphics; basic methods of computer geometry;	5							✓						✓
Fundamentals of mathematical and natural sciences	PD	EC	Scientific Research in Computer Modeling and Information Technologies	Purpose: to familiarize students with the basic concepts and means of modeling systems; to provide students with an understanding of the general principles and theoretical foundations of simulation modeling; to introduce modern methods of computer modeling of processes and systems Content: Discuss the concepts of system modeling and system modeling tools. The classical (inductive) approach. Mathematical schemes of systems modeling. Formalization and algorithmization of system functioning processes. Neural network modeling of systems. Functioning of neural networks in learning and generalization modes. Modeling of systems using typical machine circuits.	4							✓						✓
Basics of programming and databases	PD	EC	Programming Tasks of High Difficulty	Purpose: formation of skills and abilities to solve problems of increased complexity. Content: Demonstrate knowledge of programming tasks of high complexity, as well as the formation of the ability to master the methods of using software tools to solve practical problems; obtaining knowledge and skills of programming in a high-level language, independent acquisition with the help of information technology and the use of new knowledge and skills in practice.	4							✓						✓

	PD	EC	Introduction to the Specialty	<p>Purpose: formation of professional and pedagogical orientation for future pedagogical activity. 1.3 Objectives of the discipline: - to reveal the socio-economic importance of education in the modern world; - to create positive motivation to master the profession of a teacher; - to promote students' awareness of the creative nature of future professional activity. In accordance with the state standard of higher professional education, in the course of studying the course "Introduction to the pedagogical specialty", students should know: - about the subject and object of the future teacher's activity, - about the social purpose of the teacher in modern society, - about the essence of the main pedagogical phenomena (personality, teacher, upbringing and education). Content: Plan the course content and teaching methods. 2. Develop training programs and plans. 3. Work in a team for the development and implementation of educational programs. Study the types of feedback used in the updated program, and analyze how they are used. The use of strategies in the lessons of the updated program. The Jigsaw method for analysis. Brainstorming, reflection. Analyze the specifics of innovative pedagogical approaches; Determines effective ways of critical thinking. Smart learning, intelligent application principles and Smart purpose.</p>	4			✓	✓	✓					✓		
Fundamentals of mathematical and natural sciences	PD	EC	Mathematical Analysis	<p>Purpose: formation of students' skills in conducting classical fundamental training in mathematical analysis Content: Application of the acquired knowledge in solving real practical problems, advanced methods of solving mathematical problems are considered. Before studying this course, it is recommended to have good knowledge in mathematical analysis 1-2, solve double, triple, curved, surface integrals, and study the differences between them; •choose suitable mathematical methods for solving problems; •use an understandable scientific language to</p>	4		✓								✓		

				formulate the basic concepts of the course.														
Personal computer software in education	PD	EC	Development and Application of Mobile Applications	Purpose: to teach how to develop applications for small portable devices, such as PDAs, smartphones or cell phones Content: Setting up the development environment. The necessary tools with which you want to start getting acquainted with Android. Basics of developing mobile application interfaces. Fundamentals of multi-window application development. Working with databases, graphics and animation. Game development. Using libraries Using smartphone capabilities in applications. develop applications for small portable devices such as PDAs, smartphones or cell phones.	5							✓		✓			✓	
	PD	EC	Basics of Robotics and IT Technology	Goal: mastering the concepts of operating systems, the basic principles of designing and building operating systems; Content: -formation of basic ideas, knowledge and skills in the field of organization of the functioning of modern operating systems, namely, the skills of creating and using effective software for managing computing resources in multi-user operating systems. -obtaining basic, theoretical knowledge in the field of the functioning of modern operating systems, the principles of the organization of input / output and multi-program work, and the acquisition of practical OS administration skills.	4						✓			✓			✓	
Basics of programming and databases	PD	EC	Solving Non-Standard Tasks	Objective: To form an idea of the main technologies of parallel computing. Contents: Overview of supercomputer technologies. Introduction to Linux, bash, working on a supercomputer. MPI basics. Point-to-point and collective exchanges. Theoretical and practical foundations of parallel algorithms. Basics of parallelization using OpenMP technologies, Posix Threads, automatic parallelization. Basics of using graphics accelerators using CUDA, OpenACC, etc. technologies. Use practical programming skills;	4							✓		✓			✓	

Personal computer software in education	PD	EC	E-Education	Purpose: mastering all the basic functions, theoretical materials, demonstrates the perception of the first knowledge, provides exercises and benchmarks for self-education Content:The study of e-learning today is an educational process in which interactive electronic means of information delivery are used:compact disks; corporate networks;Internet. Globally, this became possible with the development of the Internet, which made it possible to transfer the necessary amount of data from one end of the world to the other, freely communicate with other network users online and post information on Internet sites	5					✓				✓				
	PD	EC	Programming in Android	Purpose: formation of knowledge, skills and abilities of using information technologies in educational activities Content:To demonstrate the creation of applications for the corporate sector, programmers need to know Java and Eclipse technologies, as well as the basics of the Android mobile architecture.use the AndroidSDK toolkit(code.google.com/android /) The following are considered: global trends in world education Digitalization of education accelerates the process of information processing, transforms the nature of mental activity, automates human labor.	5					✓			✓					
	PD	EC	Technology of Programming in Java	Purpose: the pedagogical practice in the last year is the completion of the previous practice on the organization of the educational process at school and is aimed at acquiring knowledge, skills and management skills of the entire pedagogical process and conducting practical work on the diploma project. Visiting and analyzing the lessons of teachers, subject teachers and other trainees, studying the program, textbooks, teaching aids and visual aids, equipment used by the subject teacher, development of lesson planning of their own pedagogical activities, lesson summaries on the subject at various degrees of study, electronic materials for educational purposes, conducting	4					✓			✓					

				lessons on the subject of specialty.														
Fundamentals of mathematical and natural sciences	PD	EC	Modeling Applied Mathematics Tasks in MatLab	Purpose: to form an idea of the properties of applied specified graphic and printed packages. The study of the basics of design, construction of algorithms, three-dimensional graphic animations and the application of mathematical calculations using the MATLAB environment. Features of working with computer calculations, conducting modern computer calculations. Content: Use modern statistical and mathematical methods for modeling. Apply the MATLAB mathematical package in solving mathematical modeling problems; consider the use of modern statistical packages for solving mathematical modeling problems;	4							✓				✓		
Personal computer software in education	PD	EC	Web Services and Programming	Purpose: To create a conceptual representation of the components of a Web page using technologies and programming languages to create a website (HTML, CSS, JavaScript, PHP, CGI) and further publication on the Internet. Content: Discuss the work of the Internet. The principle of packet switching. TCP/IP protocol. HTML language. Web sites and Web pages. HTML formatting tags. Using a frame in HTML frames. The selector and description are the basis of CSS. Logical formatting technology. Embedding in an HTML document. Elements of the JavaScript language: syntax, constant, variable and letter.	4			✓			✓				✓			

**5. SUMMARY TABLE ON THE VOLUME OF LOANS DISBURSED IN THE
CONTEXT OF EP MODULES**

Year of study	Semester	Number of mastered modules	Number of disciplines studied			Number of credits KZ						Total hours	Total credits KZ	Number	
			CC	HsC	EC	Theoretical training	Physical education	Educational practice	Production practice	Teaching practice	Final certification			exam	offset
1	1	5	19	-	9	28	2					900	30	6	1
	2	4	15	-	12	27	2	1				900	30	4	3
2	3	6	4	16	7	27	2			1		900	30	6	3
	4	5	-	12	14	26	2			2		900	30	6	2
3	5	4	5	10	13	28				2		900	30	5	2
	6	4	-	-	26	26				4		900	30	5	1
4	7	5	-	4	29	33			10			1290	43	6	3
	8	2	-	-	-	-			4	5	8	510	17	1	2
total		13	43	42	110	195	8	1	14	14	8	7200	240	39	17

6. LEARNING STRATEGIES AND METHODS, MONITORING AND EVALUATION

<p>Learning strategies</p>	<p>Student–centered learning: The student is the center of teaching/learning and an active participant in the learning and decision-making process.</p> <p>Practice-oriented training: orientation to the development of practical skills.</p>
<p>Teaching methods</p>	<p>Conducting lectures, seminars, various types of practices:</p> <ul style="list-style-type: none"> • using innovative technologies: <ul style="list-style-type: none"> • problem-based learning; • case study; • work in a group and creative groups; • discussions and dialogues, intellectual games, olympiads, quizzes; • reflection methods, projects, benchmarking; • Bloom's taxonomies; • presentations; • rational and creative use of information sources: <ul style="list-style-type: none"> • multimedia training programs; • •electronic textbooks; • digital resources. <p>Organization of independent work of students, individual consultations.</p>
<p>Monitoring and evaluation of the achievability of learning outcomes</p>	<p>Current control on each topic of the discipline, control of knowledge in classroom and extracurricular classes (<i>according to syllabus</i>). Assessment forms:</p> <ul style="list-style-type: none"> • survey in the classroom; • testing on the topics of the discipline; • control works; • protection of independent creative works; • discussions; • trainings; • colloquiums; • essays, etc. <p>Boundary control at least twice during one academic period within the framework of one academic discipline.</p> <p>Intermediate certification is carried out in accordance with the working curriculum, academic calendar.</p> <p>Forms of holding:</p> <ul style="list-style-type: none"> • exam in the form of testing; • oral examination; • written exam; • combined exam; • project protection; • protection of practice reports. <p>Final state certification.</p>

7 EDUCATIONAL AND RESOURCE SUPPORT OF THE EP

<p>Educational Information Center</p>	<p>There are 6 subscriptions, 16 reading rooms, 2 electronic resource centers (ERC) in the structure of the EIC. The network infrastructure of the EIC is based on 180 computers with Internet access, 110 automated work places, 6 interactive whiteboards, 2 video doubles, 1 video conferencing system, 3 A-4, 3 format scanners. EIC software - AIBS "IRBIS-64" under MS Windows (basic set of 6 modules), stand-alone server for uninterrupted operation in the IRBIS system.</p> <p>The library fund is reflected in the electronic catalog available to users on the site http://lib.ukgu.kz on-line 24 hours 7 days a week.</p> <p>Thematic databases of their own generation have been created: "Almamater", "Proceedings of SKSU scientists", "Electronic archive". Online access from any device in 24/7 mode via an external link http://articles.ukgu.kz/ru/pps.</p> <p>Working with catalogs in electronic form. EC consists of 9 databases: "Books", "Articles", "Periodicals", "Proceedings of the teaching staff of SKSU", "Rare Books", "Electronic Fund", "SKGU in Print", "Readers", "SKR".</p> <p>The EIC provides its users with 3 options for accessing its own electronic information resources: from the "Electronic Catalog" terminals in the catalog hall and in the EIC subdivisions; through the information network of the university for faculties and departments; remotely on the library website http://lib.ukgu.kz/.</p> <p>Open access to international and republican resources: "SpringerLink", "Polpred", "Web of Science", "EBSCO", "Epigraph", to electronic versions of scientific journals in the public domain, "Zan", "RMEB", "Adebiet", Digital library "Aknurpress", "Smart-kitap", "Kitap.kz", etc.</p> <p>For people with special needs and disabilities, the library website has been adapted to the work of visually impaired users.</p>
<p>Material and technical base</p>	<p>The material and technical base of the Department of Informatics includes the following classrooms and computer classes for undergraduate students:</p> <ul style="list-style-type: none"> - there are 3 computer classes for laboratory work, one of them with an interactive whiteboard; - lecture halls; - STEM center. <p><i>Practice bases for students</i></p> <ol style="list-style-type: none"> 1. Shymkent, Gymnasium school No. 26 named after Zhambyl, Shymkent 2. Shymkent, SMCE "Higher College of New Technologies" named after Manap Utebayev" 3. Shymkent, secondary school No. 79 4. Shymkent, KazTilDamu LLP 5. Shymkent, South Kazakhstan Humanitarian and Economic College 6. Shymkent, specialized boarding school No. 2 with instruction in three languages 7. Shymkent, Lyceum school No. 15 named after D.I.Mendeleev

APPROVAL SHEET

under the Educational program "6B01530 – Computer science"

DAA Director _____ Naukenova A.S.

Director of DAN _____ Nazarbek U.B.

Director of DPI K _____ Bazhirov T.S.