

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



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UNIVERSITY
1943



EDUCATIONAL PROGRAM

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EDUCATION PROGRAMME

6B01502 Computer science(IP)

Registration Number	6B01500462
Code and Classification of Education	6B01-Pedagogical Science
Code and Classification of Areas of Training	6B015 - Teacher training in natural science subjects
Group of educational programs (EP)	B011- Training of IT teachers
Type of EP	Innovative
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, 2025.

Drafters:

Name	Position	Sign
Nysanov E.A.	Professor of the Department of Computer Science	
Zhaidakbayeva L.K.	Head of Department of Computer Science	
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Musaeva A.N.	Student of the group EPI-24-5к	
Kaikenova G.Zh .	The director of the Gymnasium No. 26 named after him. Zhambyl	
Sauranbayev Zh.S.	Director of the specialized boarding school No. 2 with instruction in three languages	
Utegenov M.K.	Director of the Higher College of new Technologies named after M. Utebaev	
Arynbekova A.S.	Director of the South Kazakhstan College of Humanities and Economics	
Alibekov A.K.	Director of the Robo Park Training Center	

The EP was considered at a meeting of the Academic Quality Committee of the Natural Sciences and Pedagogy the Higher School, Minutes # 6 « 12 » 03. 2025 y.

Chairman of the Committee  Tursynbaev A.Z.

The EP was considered and recommended for approval at Educational-methodical meeting of M. Auezov SKU
Minutes № 4 « 03 » 03. 2025y.

Chairman of the EMM  E. Imangaliyev

The EP was approved by the decision of the Academic Council of the University
Minutes № 10 « 27 » 03. 2025 y.

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1. CONCEPT OF THE EDUCATIONAL PROGRAM

Mission of the University	Generating new competencies, training a leader who translates research thinking and culture.
University Values	<ul style="list-style-type: none">– 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	<ul style="list-style-type: none">– Deep subject knowledge, their application and continuous expansion in professional activity– Information and digital literacy and mobility– 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
Uniqueness of the EP	<ol style="list-style-type: none">1. The program includes unique courses and modules that reflect the latest advances in computer science, such as artificial intelligence, machine learning, big data, etc.2. Use of modern teaching methods, such as project-based learning, practical classes with real cases, as well as online courses and webinars.3. Availability of partnerships with the industry and the possibility of internships or practical training in companies can significantly increase the value of the program for students.4. Formation of students' readiness to organize and conduct research and practical activities in the field of computer science, teaching methods, implementation of innovative technologies.5. The program focuses on the formation of specific competencies in demand in the labor market, such as skills in working with specific programming languages or technologies.
Academic Integrity and Ethics Policy	<p>The university has taken measures to maintain academic integrity and academic freedom, protection from any type of intolerance and discrimination:</p> <ul style="list-style-type: none">• Rules of academic integrity (order No. 212 of October 10, 2022);• Anti-corruption standard (order No. 8 n/a dated 08/01/2025).• Code of Ethics (Order No. 212 of October 10, 2022)
Regulatory and legal framework for the development of EP	<ol style="list-style-type: none">1. Law of the Republic of Kazakhstan “On Education”;2. «Model Rules for the Activities of Organisations of Higher and Postgraduate Education», approved by order of the Ministry of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated June 24, 2024. No. 307;3. Standard rules for admission to training in educational organizations implementing educational programs of higher and postgraduate

education, approved by order of the Ministry of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 600 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 26, 2024. No. 372;

4. State mandatory standards for higher and postgraduate education, approved by order of the Ministry of Education and Science of July 20, 2022 No. 2 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated March 04, 2025. No. 90;

5. Rules for organizing the educational process in 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 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated April 29, 2024. No. 203;

6. Qualification reference book for 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 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated June 20, 2024. No. 207;

7. Methodological recommendations for introducing ECTS principles into the educational process and expanding academic freedom. Appendix to the order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated February 12, 2024 No. 57

8. Guidelines for the development of educational programs for higher and postgraduate education, Appendix 1 to the order of the Director of the National Center for the Development of Higher Education of the Ministry of Education and Science of the Republic of Kazakhstan dated May 4, 2023 No. 601 н/к

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 in accordance with 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 as reworded by order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 26, 2024. No. 372

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 PROGRAM

Purpose of the EP	Training a professional teacher with modern subject, communication, digital, entrepreneurial competencies, inclusive education skills, capable of creating high-quality educational content and organizing the educational process
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.- Creating conditions for the formation of in-demand knowledge and skills, a conscious attitude towards improving the well-being of the population and protecting the planet in the context of the SDGs
Harmonization of EP	<ul style="list-style-type: none">• 6 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	Professional standards "Teacher" (order No. 500, 15.12.2022), approved by the PNPP RK "Atameken". Professional standards for teachers of educational organizations (order No. 31, 02/24/2025). Sectoral frameworks of qualifications in the field of education, approved by protocol 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.
Name of the degree awarded	After successful completion of this educational program, the graduate is awarded the degree: Bachelor of Education in the educational program "6B01502 Computer Science (IP)"
List of qualifications and positions	Bachelors in the educational program "6B01502 Computer Science (IP)" can take up primary positions as a computer science teacher-intern at a school.
Field of professional activity	basic and secondary general education (schools, lyceums, gymnasiums)
Objects of professional activity	<ul style="list-style-type: none">- students of educational institutions of all types of ownership- college students- pupils of child and youth development centers
Subjects of professional activity	<ul style="list-style-type: none">• the educational process in the unity of its value-target guidelines, content, methods, forms and results;
Types of professional activity	<ul style="list-style-type: none">-educational;- organizational and methodical;- experimental research;

- organizational and managerial;
- social and pedagogical;
- educational.

Learning outcomes

RO1 - possess intercultural and communicative competence, apply skills for independent continuation of further education and build professional relationships in pedagogical and social activities; purposefully use means and methods that ensure the preservation and strengthening of health in professional activities.

RO2 - collect and interpret information to form knowledge taking into account social, ethical and scientific considerations, critically evaluate their values, attitudes, ethical principles and teaching methods, set new goals for their own pedagogical development.

PO3 - critically select theoretical knowledge based on advanced concepts in the field of computer science using various information and communication technologies and use knowledge to improve computer science training and their own professional growth.

PO4 - understand the psychological and pedagogical problems of teaching and upbringing students with disabilities in the context of inclusive education, take into account the diverse abilities of students in the learning process, ethically support their psychological well-being in a life and educational context, including using information technology.

PO5 - Comprehensively and objectively reveal the main stages of the history and evolution of the forms of statehood and civilization of the Kazakh people, knowing the methods of scientific research and academic writing, understanding the importance of the principles and culture of academic honesty.

PO6 - solve standard tasks of professional pedagogical activity in the context of digitalization of the transformation of society, taking into account the requirements of information security.

PO7 - Apply the principles of construction and operation of computing systems and networks, the main methods of designing data and information systems to solve applied problems.

PO8 - Develop and implement digital educational resources using IT and innovative educational technologies (including CLIL) in order to expand students' information worldview and develop their analytical and critical thinking.

PO9. Create effective learning conditions in a digital environment that meet the objectives of teaching computer science and robotics, using modern digital educational technologies, including the development of teaching materials, interactive courses and the organization of the educational process.

PO10 - Conduct pedagogical research using digital tools and methods, applying the results to solve practical problems in their scientific and pedagogical work.

PO11. Carry out the educational process using modern methods and technologies for teaching computer science, develop interactive courses and digital educational resources for educational institutions.

3. COMPETENCIES OF A GRADUATE OF THE EP

GENERAL COMPETENCIES (SOFTSKILLS). Behavioral skills and personal qualities	
GC 1. Competence in managing one's literacy	GC 1. 1. Be able to draw up lesson plans taking into account the characteristics and needs of students, determining the appropriate teaching methods and assessment tools. GC 1.2. Developing individual development trajectories for students taking

	<p>into account their individual abilities and needs. Designing and developing programs and methods of training and education taking into account individual abilities and needs.</p> <p>GC 1.3. Knowledge of the basics of labor legislation, labor protection and safety regulations. Basics of teaching methods, modern teaching technologies, including information technology. Laws of youth and personal development</p>
GC 2. Language competence	<p>GC 2.1. The ability to build communication programs in the state, Russian and foreign languages.</p> <p>GC 2.2. The ability for interpersonal social and professional communication in the conditions of intercultural communication.</p>
GC 3. Mathematical competence and competence in the field of science	<p>GC 3.1. 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.</p>
GC 4. Digital competence, technological literacy	<p>GC 4.1. 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.</p> <p>GC 4.2. The ability to use various types of information and communication technologies: Internet resources, cloud and mobile services for searching, storing, protecting and disseminating information.</p>
GC 5. Personal, social and educational competencies	<p>GC 5.1. 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.</p> <p>GC 5.2. Knowledge of the Rules of pedagogical ethics.</p> <p>GC 5.3 The ability to build a personal educational trajectory throughout life for self-development, career growth and professional success.</p> <p>GC 5.4. The ability to successfully interact in a variety of socio-cultural contexts during study, work, home and leisure.</p>
GC 6. Entrepreneurial competence	<p>GC 6.1. The ability to be creative and entrepreneurial in a variety of environments.</p> <p>GC 6.2. The ability to work in a mode of uncertainty and rapidly changing task conditions, make decisions, allocate resources and manage your time.</p> <p>GC 6.3. The ability to work with consumer requests.</p>
GC 7. Cultural awareness and self-expression	<p>GC 7.1. The ability to show worldview, civil and moral positions.</p> <p>GC 7.2. The ability to be tolerant of the traditions and culture of other peoples of the world, to have high spiritual qualities.</p>
PROFESSIONAL COMPETENCIES (HARDSKILLS).	
Theoretical knowledge and practical skills specific to this field	<p>PC-1. Ability to master knowledge in the field of pedagogy, psychology, pedagogical innovation, pedagogical technologies, be capable of innovation, strive for perfection of pedagogical skills, show initiative and diligence; ability to master knowledge in the field of psychological and pedagogical sciences, to analyze the significance of human development and the physiology of schoolchildren's development; their application in psychological and pedagogical practice.</p>
	<p>PC-2. Ability to develop lesson plans tailored to the specific needs and characteristics of students, and select appropriate teaching and assessment methods based on their age.</p>

	Use new approaches, effective forms, methods, and teaching tools tailored to the individual needs of students. Consider the individual needs of students with special educational needs. Possess skills in analyzing organized learning activities and the educational process. Set educational goals and conduct short- and medium-term planning.
	PC-3. Skills and abilities in developing and presenting the results of professional activities, programs, methods of teaching and developing schoolchildren, the characteristics and needs of teaching the subject, methods
	PC-4. Independently and in a team, study the results of modern research on improving the educational process.

3.1 MATRIX OF CORRELATION OF THE LEARNING OUTCOMES OF THE EDUCATIONAL PROGRAM AS A WHOLE WITH THE COMPETENCES FORMED

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11
GC 1			+	+	+	+	+				
GC 2	+	+									
GC 3					+	+	+	+	+	+	+
GC 4					+	+	+	+	+	+	+
GC 5		+	+	+	+	+	+	+			
GC 6									+	+	+
GC 7	+										
PC 1			+	+							
PC 2					+	+	+	+	+		+
PC 3					+	+	+	+	+		+
PC 4		+					+			+	+

4. Matrix of influence of modules and disciplines on the formation of learning outcomes and information on labor intensity

Module	Cycle	Component	Name of the discipline	Brief description of the discipline	Quantity loans	Formed learning outcomes (codes)														
						PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11				
Module of Historical and Philosophical Competencies	GED	OC	History of Kazakhstan	<p>Objective: to form an objective idea of the history of Kazakhstan based on a deep understanding and scientific analysis of the main stages, patterns, and uniqueness of the historical development of Kazakhstan.</p> <p>Contents: Ancient people and the formation of a nomadic civilization. Turkic civilization and the great steppe. Kazakh Khanate. Kazakhstan in the modern era. Kazakhstan as part of the Soviet administrative-command system. Proclamation of independence of Kazakhstan.</p> <p>State system, socio-political development, foreign policy, and international relations. Methods and techniques of historical description for analyzing the causes and effects of events in the history of Kazakhstan.</p>	5		+													
	GED	OC	Philosophy	<p>Objective: To develop students' holistic understanding of philosophy as a special form of understanding the world, its main sections, problems and methods of studying them in the context of future professional activity. To develop students' philosophical reflection, self-analysis and moral self-regulation skills.</p> <p>Contents: The emergence of a culture of thinking. The subject and method of philosophy. Fundamentals of a philosophical understanding of the world: issues of consciousness, spirit and language. Being. Ontology and metaphysics. Cognition and creativity. Education, science, engineering and technology. Philosophy of man and the world of values. Ethics. Philosophy of values. The subject of aesthetics as an area of philosophical knowledge. Philosophy of freedom. Philosophy of art. Society and culture. Philosophy of history. Philosophy of religion. "Mangilik El" and "Modernization of public consciousness" are the new Kazakhstani philosophy.</p>	5		+													

Module of Socio-Political Knowledge	GED	OC	Social and Political Studies	<p>Objective: Formation of knowledge about socio-political activity, explanation of socio-political processes and phenomena.</p> <p>Content: Socialization, identity and deviant behavior: the role of an inclusive approach. Consideration of socio-ethical values of societies. Understanding the features of social, political, cultural, psychological institutions in the context of their role in the modernization of Kazakhstani society. Making decisions on resolving conflict situations in society, including in professional society. Study of political institutions and processes, methods of analysis and interpretation of ideas about politics, power, state and civil society, understand and apply methods and techniques of sociological, comparative analysis, understand the essence and content of the political situation in the modern world. Analysis and classification of the main political institutions.</p>	4		+											
	GED	OC	Cultural Studies and Psychology	<p>Objective: formation of scientific knowledge of history, modern trends, current problems and methods of development of culture and psychology, skills of system analysis of psychological phenomena.</p> <p>Contents: Social and psychological foundations and development of inclusive culture in modern society; Psychological characteristics and conditions of professional adaptation of persons with disabilities; Psychological support and tolerance as a way of social integration of people with disabilities; Social and psychological barriers to interaction of persons with normal and impaired development in modern society.</p> <p>Morphology, language, semiotics, anatomy of culture. Culture of nomads, proto-Turks, Turks. Medieval culture of Central Asia. Kazakh culture at the turn of the 18th - 19th centuries, 20th century. Cultural policy of Kazakhstan. State Program "Cultural Heritage". National consciousness, motivation. Emotions, intellect. Human will, psychology of self-regulation. Individual and typological features. Values,</p>	4		+	+										

				interests, norms - spiritual basis. The meaning of life, professional self-determination, health. Communication between individuals and groups. Social and psychological conflict. Models of behavior in conflict.													
The Basis of Social and Physical Development	GED	EC	Ecosystem and Law	<p>Objective: Formation of integrated knowledge in the field of economics, law, anti-corruption culture, ecology and life safety, entrepreneurship, and scientific research methods.</p> <p>Content: Legal foundations of artificial intelligence. Inclusion - a strategy of international legislation. Fundamentals of safe interaction between man and nature, productivity of ecosystems and the biosphere. Entrepreneurial activity in conditions of limited resources, increasing the competitiveness of business and the national economy. Regulation of relations in the field of ecology and human life safety. Knowledge and observance of Kazakhstani law, responsibilities and guarantees of subjects, state regulation of public relations to ensure social progress. Application of scientific research methods.</p>	5	+	+	+									
	GED	EC	Entrepreneurship and Financial Literacy	<p>Objective: To study personal and family financial resources that are crucial for achieving financial well-being.</p> <p>Contents: Financial planning and consumer safety. Basic methods and techniques for effective spending and saving of finances. Protection and investment of own financial resources. The role and importance of personal finances, their possibilities for achieving financial stability. Filtering out a lot of dubious financial information. Incentives for independent management of responsibilities and optimal financial possibilities of the consumer. Making competent financial decisions when building a professional career.</p>		+	+	+									
	BD	EC	Abay Studies	<p>Objective: To introduce students to the works of Abai. Abai as a reformer of Kazakh poetry. - to master the methodology and basic concepts of describing the science of Abai studies;</p> <p>Contents: The study of the life and creative heritage</p>	3	+	+			+							

			of Abai can begin with Alikhan Bokeikhanov, Akhmet Baitursynuly, Mirzhakyp Dulatuly. 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 wide range of research works on musical heritage are analyzed.															
	BD	EC	Muhtar Studies	<p>Objective: to master the methodology and basic concepts of describing the science of Mukhtar studies; - to know the leading directions of literary criticism; to master various techniques for interpreting Mukhtar's works of art;</p> <p>Contents: The life and work of M.O. Auezov are studied; the writer's creative laboratory, his biography in the context of his work are analyzed; as the creator of the science of Abaev studies; researcher of the "Manas" zhyr. Acquaintance with M. Auezov as a prominent public figure. The literary heritage of M. Auezov in world and oriental literature is analyzed. Feelings of patriotism and love for the homeland are instilled.</p>														
	BD	EC	Basics of Artificial Intelligence	<p>Objective: to develop competencies in the use of knowledge and practical application of artificial intelligence tools and methods, taking into account the priorities of the AI-Sana program.</p> <p>Content: Introduction to artificial intelligence (AI). Development of practical skills and abilities: apply AI tools; work with large language models (LLM); use codeless artificial intelligence platforms; generative artificial intelligence tools; image recognition; natural language processing (NLP); data visualization using AI. Have an idea of the use of AI in various fields; reveal the potential of AI through the integration of the AI-Sana program approaches.</p>														
	BD	EC	Foundations of Anticorruption Culture	<p>Objective: formation of an anti-corruption worldview, strong moral foundations of the individual, civic position, sustainable skills of anti-corruption behavior.</p> <p>Contents: Application of AI in combating corruption Overcoming legal nihilism, forming the foundations</p>														

				of the legal culture of students in the field of anti-corruption legislation. Formation of a conscious perception, attitude towards corruption. Moral rejection of corrupt behavior, corrupt morality, ethics. Mastering the skills necessary to combat corruption. Creation of an anti-corruption standard of behavior. 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 reasonably defend one's position, look for ways to overcome manifestations of corruption.													
	GED	OC	Physical Training	<p>Objective: development of social and personal competencies and the ability to purposefully use the means and methods of physical culture that ensure the preservation and strengthening of health in preparation for professional activity; for the stable transfer of physical activity, neuropsychic stress and adverse factors in future work activity.</p> <p>Contents: Implementation of physical culture and health and training programs. A set of general developmental and special exercises. Sports (gymnastics, sports and outdoor games, athletics, etc.). Control and self-control during classes, insurance and self-insurance. Judging competitions. Means of professional and applied physical training. Modern health systems: the breathing system according to A. Strelnikova, K. Buteyko, K. Dineika, joint gymnastics according to Bubnovsky</p>	8	+											
Instrumental and Communicative Module	GED	OC	Kazakh (Russian) Language	<p>Objective: development of communicative competence using the Kazakh (Russian) language in the socio-cultural, professional sphere and public life, improvement of the ability to write academic texts.</p> <p>Content: Levels A1, A2, B1, B2-1, B2-2 (B2, C1 Russian language) are presented in the form of cognitive-linguocultural complexes consisting of spheres, topics, subtopics and typical communication situations of the international standard: social and everyday, socio-cultural, educational and professional, modeled forms: oral and written communication, written speech works, listening.</p>	10						+						

				Demonstration of understanding of language material in texts on the educational program, proficiency in terminology and development of critical thinking.														
	GED	OC	Foreign Language	<p>Objective: development of intercultural and communicative competence of students in the process of foreign language education at the sufficient level A2 and the level of basic sufficiency B1. The student reaches the level B2 of the Common European Framework of Reference if the language level at the start is higher than the level B1 of the Common European Framework of Reference.</p> <p>Content: Levels A1, A2, B1, B2 are presented in the form of cognitive-linguocultural complexes consisting of spheres, topics, subtopics and typical communication situations of the international standard: social and everyday, socio-cultural, educational and professional, modeled forms: oral and written communication, written speech works, listening. Demonstration of understanding of the language material in texts on the educational program, proficiency in terminology and development of critical thinking.</p>	10													
	GED	OC	Information and Communication Technologies	<p>Objective: developing the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, methods of collecting and transmitting information using digital technologies. Development of new "digital" thinking, acquisition of knowledge and skills in using modern information and communication technologies in various activities.</p> <p>Contents: Introduction and architecture of computer systems. Software. Operating systems. Human interaction with computers. Database systems. Database management. Networks and telecommunications. Cybersecurity. Internet technologies. Cloud and mobile technologies. Multimedia technologies. Smart technologies. Electronic technologies. Electronic business. Electronic governance.</p>	5													
	BD	HsC	Advanced Foreign Language	Detailed reports on the topic. News and reports. Articles and messages on contemporary issues, contemporary fiction. Active participation in a	4		+	+										

				discussion on a familiar problem, explaining and defending your opinion. Expressing all the arguments "for" and "against" a current problem. Writing essays, reports, letters, highlighting particularly important events and impressions.													
Basics of Psychological and Pedagogical Preparation	BD	HsC	Psychology, Interaction and Communication in Education	Objective: Mastering modern psychological theories and models, personality functioning and its individual properties. Content: Future teachers contribute to the favorable development of students by promoting dialogue, interaction and communication in the educational process. They are able to communicate, interact and collaborate with students' families, as well as within various other types of partnerships and create new relationships suitable for the development of their own pedagogical activity.	5				+								
	BD		Psychological-pedagogical assessment (pedagogical practice, 2nd year)	Objective: To become familiar with the content of the psychological and pedagogical work of the class teacher. To become familiar with the documentation and activities of the class teacher on psychological and pedagogical support of the educational process. To become familiar with the documentation of the psychological and pedagogical work of the subject teacher and the content of his/her activities. Monitoring and compiling a psychological and pedagogical profile of the team. Conducting a psychological and pedagogical analysis of the lesson.	2											+	
Supporting Learners as Individuals	BD	HsC	Education Science and Key Learning Theories	The aim of this course is to improve pedagogical competence in the field of pedagogy and didactics. Future teachers study the basics of pedagogical science, such as conceptual ideas about a person, leading to various learning theories and pedagogical models. Based on the understanding of theoretical concepts, future teachers can make appropriate pedagogical choices for various learning situations.	3	+		+	+						+		+

	BD	HsC	Age and Physiological Features of Children	Objective: To observe learners' development, plan and implement age-appropriate learning processes, taking into account individual learners' needs, and to creatively support overall learning and learners' well-being. Students can: recognise different learners' individual starting points, their learning potential and their needs for specific support; consider their learners' individual needs for specific support in guidance, teaching and assessment.	4	+			+								
	BD	HsC	Inclusive Educational Environment	Understanding and being able to take into account the diversity of students in the learning/teaching process, supporting their well-being in a meaningful, psychological and ethical way, taking into account the context of their lives. Students can: accept diversity, identify barriers to participation and learning; identify development priorities, plan activities to adapt educational programs, develop differentiated lessons; facilitate collaboration in the school community to create a foundation of inclusive values and support student participation and achievement.	4	+			+					+	+		
	BD	HsC	Teaching Planning and Individualization of Learning Computer Science	Objective: to develop skills in individualising teaching, taking into account the diversity of learners and using teaching technologies, based on pedagogical and independent research. Students can: understand the requirements of competence, entrepreneurship and sustainable development in their pedagogical and subject area when planning and delivering training; plan and forecast other conditions that affect learning; apply the principles of individualised learning and guidance in practice, take into account the needs of their learners, support the development of their personality and self-esteem.	4	+			+								
	BD		Introduction to the teaching profession (pedagogical practice, 1st year)	During the internship, they become familiar with the organization of work and analyze the educational and methodological activities of the teacher; with the tasks, content and organization of pedagogical work at school; visit classrooms, become familiar with their equipment and design, apply the knowledge gained during theoretical training, perform independent work, acquire computer skills; A report will be prepared based on the results of the internship.	1											+	

			pedagogy and understand the difference between everyday thinking and scientific knowledge; distinguish between cultural ideas about human nature and their significance for the work of a teacher; accept changes in the field of education, taking into account the prospects for their development.															
	BD	HsC	Action Research	The aim is to improve practice and solve problems in a specific context through a systematic cycle of research, action and reflection. Contents: Action Research Fundamentals, Action Research Methodology, Action Research Cycle, Action Research Data Collection Methods, Data Analysis and Interpretation, Action Research Report Writing, Critical Perspectives on Action Research. Action Research is a practice-oriented approach, so case studies, practical assignments and projects are often used in the learning process.														
	BD	HsC	Research, Development and Innovation of Computer Science	Objective: to develop a research- and development-oriented mindset, the ability to develop, innovate and apply innovative teaching approaches and technologies in the context of ongoing changes in society and the educational environment. Students will be able to: develop their own teaching skills using research-based approaches; apply critical thinking when collecting and using data for software development; participate in scientific research and/or develop cooperation between universities and stakeholders; document their own research activities and present the results using various forms of communication.	4													
	BD	HsC	Lesson Study	Objective —To prepare future teachers to use Lesson Study in their professional activities to continuously improve their practice and enhance student learning. It should provide them with the skills of collaboration, analysis and critical reflection necessary to successfully apply this method. Content: Introduction to Lesson Study, the Lesson Study cycle, key elements of successful Lesson Study, practical application of Lesson Study, planning a research lesson, lesson observation, reflection, development of tools for Lesson Study.														

			science.																
	BD	HsC	Discrete Mathematics	The main goal of mastering the discipline "Discrete Mathematics" is to teach students methods of solving problems of discrete mathematics and the corresponding thinking. In the process of training, it is necessary to give students a stock of basic knowledge on the main sections of discrete mathematics, teach them the rational and effective use of the acquired knowledge in solving typical problems of discrete mathematics; to form in students an idea of discrete mathematics as a method of studying a wide range of objects and processes.	4														
	BD	HsC	Theoretical Foundations of Computer Science	Objective: The discipline is basic for a large number of specialized disciplines. The discipline forms knowledge about combinatorics, mathematical logic, methods of information theory, information coding, theory of algorithms and methods of graphical representation of the algorithm necessary for successful mastering of the basics of theoretical computer science. During the study of the discipline, future teachers will master the skills of using a computing apparatus to solve relevant applied problems and the ability to solve typical problems. Students can: know the general principles of information theory and the implementation of algorithms of various classes; have basic skills in using sections of theoretical computer science; analyze the effectiveness of the algorithms used to solve applied problems	4														
Module Art of Programming	BD	HsC	Introduction to Programming	Objective: As part of the course, future teachers study methods of developing algorithms and programs for solving various problems. To do this, they analyze the program structure, principles of constructing algorithms and programs, solution methods, algorithmization, programming, debugging and implementation of programs using the Python programming language. Students can: apply knowledge and a system of concepts in the field of modern programming, general principles of software implementation of algorithms of various classes; implement algorithms using the Python programming	5														

			language; analyze the efficiency of the algorithms used to solve applied problems; use appropriate subject terminology and syntactic structures; test and debug program codes.															
	BD	HsC	Algorithms and Data Structures	Objective: The course is designed to study the development of algorithms and programs for solving various problems. For this purpose, the program structure, principles of constructing algorithms and programs, solution methods, algorithmization, programming, debugging and implementation of programs using the high-level programming language Python are considered. Students can: apply knowledge and a system of concepts in the field of modern programming, general principles of software implementation of algorithms of various classes; implement algorithms using the Python programming language; analyze the efficiency of the algorithms used to solve applied problems; use the appropriate subject terminology and syntactic structures; test and debug program codes.	5										+	+	+	
	BD	HsC	Object-Oriented Programming	Objective: During the course, future teachers analyze the principles of object-oriented programming in Python and apply them in software development, as well as in teaching activities. Students can: apply the basic principles of object-oriented programming; use classes and modules from the language libraries; develop programs in an object-oriented programming environment, creating their own classes.	5											+	+	+
	PD	EC	Development of Graphical User Interfaces	The course "Development of Graphical User Interface" covers the design, development and optimization of graphical interfaces for various software products. Students study the principles of interface design, user interaction and management of user experience elements. Studying the course "Development of Graphical User Interface" provides students with the necessary skills to create modern and intuitive interfaces that take into account user needs and provide a pleasant user experience. This knowledge is important for software developers, interface designers and user experience specialists.	5											+		+

			models to create scenes and animation; knowledge of the process of visualization of scenes and animation (rendering); capabilities of the selected 3D editor for creating a three-dimensional image; demonstrate the ability to use the capabilities of the selected 3D editor to create simple three-dimensional models; visualize a three-dimensional model in the form of a scene or animation; search for ready-made 3D models on the global computer network Internet; implement objects from other software products into 3D models.														
	PD	EC	IT Project Management Objective: During the course, future teachers study the issues of software development and maintenance. They use knowledge of planning, organization and control of all phases of the software life cycle. They also study basic knowledge of IT management standards, Agile programming, technology and software debugging using the latest technologies and approaches. In addition, future teachers gain a general idea of project management tools. Students can: select and practically apply tools and methods for managing IT project changes, tools and methods necessary for managing communications and resources of an IT project; determine a life cycle model that meets the specifics of a particular IT project; develop adequate measures to respond to IT project risks and identify IT project risks, conduct risk assessment; demonstrate knowledge of the main international and national project management standards; the main types of software products used to automate IT project management; apply tools for managing project deadlines and knowledge and develop a hierarchical structure of project work, the structure of a corporate standard for IT project management; formulate the main features of project-oriented activities and illustrate them with specific examples.										+		+		
High Technology(HI-TECH) Module	BD	HsC	Educational Robotics Objective: During the course, future teachers develop their readiness to organize effective scientific, informational and methodological support for the introduction of robotics into school education. They study the ways of using the potential of robotics as a leading means of forming students' basic ideas about	6										+			

			engineering activities. They explore the ways of using robotics technologies in class and extracurricular activities in a comprehensive school to develop students' creative abilities in the process of designing and programming. Students can: know the current state and prospects for the development of educational robotics at school as an integrative academic discipline, its place and role in the general education system; be able to analyze the goals and content of educational robotics courses, technologies for different levels of education; demonstrate skills in designing and programming robots. use the appropriate subject terminology and syntactic structures.														
BD	HsC	The Basics of Artificial Intelligence 1	Objective: The course is aimed at developing in future teachers a holistic understanding of the current state of the theory and practice of constructing intelligent systems for various purposes. Students will be able to: perform a comparative analysis of various knowledge representation models to solve applied problems of computer modeling of human intellectual activity; implement knowledge representation models (including their symbiosis) in logical and functional programming languages; apply modern programming tools and technologies.	5										+	+	+	+
BD	HsC	Immersive Technologies in Education	The purpose of the course is to develop students' basic knowledge and skills in working with VR/AR technologies and their application in working with projects and to develop skills in using VR/AR technologies in education, virtual, augmented and mixed reality, basic concepts, relevance and future of these technologies is to introduce the concept and form an idea of the basic concepts and differences between virtual and augmented reality.	4										+	+	+	+
BD	HsC	Internet of Things	Objective: During the course, future teachers analyze the principles of organization and functioning of the Internet of Things, existing technologies, as well as the main trends and directions of development of the Internet of Things. Future teachers develop skills in working with microcontrollers and basic debug boards, form an understanding of existing IoT systems	4										+	+	+	+

				and their application for specific scenarios, as well as the development of integrated IoT systems. Students can: use knowledge of the basic provisions of the Internet of Things concept, the main types and operating principles of IoT equipment on the market, technologies and protocols used to create IoT solutions; find suitable electronic components for creating Internet of Things solutions, analyze the cost-effectiveness of the solution; design and assemble a physical prototype; test the solution, analyze and troubleshoot; demonstrate skills in working with electronic components and IoT devices and developing their own projects.														
Digital teacher skills	PD	HsC	Methodology and Technology of Distance Learning	Objective: to develop students' competencies necessary for a new type of professional activity – organizing and implementing distance learning. Contents: Basic concepts and technologies of distance learning. Internet education, virtual education. Digital gadgets and digital tools for distance learning. Typology and forms of educational activities: Internet lessons, chat lessons, web lessons, distance Olympiads and projects, competitions, webinars, etc. in distance learning. Diagnostics and assessment in distance learning.	4													
	PD	EC	Primary School Digital Literacy	Objective: During the course, future teachers develop their knowledge and skills in teaching computer technologies, information presentation and processing, safe use of the Internet and computational thinking to primary school students. Students can: understand the main topics necessary for the safe and effective use of smartphones and computers; master the methodology of teaching the basics of digital literacy, digital hygiene, information security, taking into account the age of children.	4													
	PD	EC	History of Computer Science	The objective of this course is to study the historical development of computer science as a science and a branch of knowledge, as well as to understand the importance and impact of information technology on modern society. The course is aimed at developing an understanding of the evolution of computer technology, key moments and achievements, as well														

			as identifying the links between the history of computer science and modern trends in the digital environment. Studying the history of computer science helps students understand how information technology has come to its current state, what is the significance of its contribution to modern society and what challenges this field faces in the future. This course promotes the development of critical thinking, awareness and the value of historical perspective in a digital society.													
	PD	EC	Development of Digital Educational Resources (Ecosystem)	Objective: to equip future teachers with the competence to use modern technologies to develop digital educational resources taking into account interdisciplinary knowledge. Students can: analyze and evaluate existing developed digital educational resources used in the educational process; solve professional problems in practical activities to create digital educational resources (search, selection of educational material, choice of technological component, compositional solution, interface design, editing).	4			+					+		+	+
	PD	EC	Educational Ecosystems	The discipline "Educational Ecosystems" is aimed at training specialists to work in the field of modern education and education of the future, in the context of radical reform of the entire education system at all levels and areas. The purpose of mastering the discipline is to form in students an understanding of modern trends and directions of education development, familiarize them with the design of different types of educational programs; develop the ability to effectively use digital technologies, and have an idea of educational ecosystems. Mastering the discipline teaches students enterprise, tolerance, creativity, and an understanding of the essence of educational ecosystems. Objectives of the discipline: to form a general understanding of educational ecosystems; to reveal the essence of the main directions of development of educational ecosystems; to form an idea of the forms and methods of organizing training in educational ecosystems; to introduce new information technologies for									+	+		+

				forecasting and managing education in modern conditions; to teach modeling the educational process and design educational programs in the context of educational ecosystems.													
			Industrial Practice (pedagogical, 4th year)	<p>Objective: Deepening theoretical knowledge in general scientific, cultural, psychological, pedagogical, methodological and basic and professional disciplines, as well as clarifying knowledge in disciplines during practice, forming pedagogical skills and competencies.</p> <p>Contents: Knowledge of all the main actions of the teacher and class teacher in the system of integrity using the experience of teachers-methodologists; mastering the basics of working with students' parents; mastering deep psychological and pedagogical methods of personality in unity through studying and analyzing the educational situation, mastering the methods of analysis and self-analysis of various forms of educational work.</p>	10												+
Final Certification			Research and Innovation in Education (pedagogical practice, 4th year)	<p>The purpose of the internship is to improve professional competence in the field of pedagogy through the acquisition of practical work experience at a school or other educational organization.</p> <p>The internship allows students to gain experience as teachers in real production environments. They get acquainted with the features of organizing the educational process in various production environments and acquire the necessary skills for working with students. The internship involves mastering the methods and techniques of pedagogical work, as well as the formation of the ability to interact with colleagues, parents and students.</p>	8												+
			Writing and Defending a Thesis, a Graduate Work, or Preparing and Passing a Comprehensive Exam	<p>Objective: Select a research topic and draw up a research plan. Justify the relevance of the chosen topic, define the purpose and main objectives, object and essence of the research. Formulating a research hypothesis. Drawing up a plan and schedule for the thesis. Selecting and studying primary literature. Conducting experiments, processing and analyzing their results. Predicted research results. Writing, editing and defending the thesis.</p>	8												+

Total					240кг.													
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**5. SUMMARY TABLE REFLECTING THE VOLUME OF CREDITS
MASTERED BY MODULES OF THE EDUCATIONAL PROGRAM**

Course of training	Semester	Amount of the mastered modules	Amount of the studied disciplines			Amount of KZ credits						Total hours	Total credits KZ	Amount	
			Compulsory component	University component	Optional component	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	5	15	12		27	2	1				900	30	6	2
2	3	6	4	21	3	28	2					900	30	6	2
	4	6	-	21	5	26	2			2		900	30	5	2
3	5	5	5	16	9	30						900	30	7	
	6	4	-	12	15	27				3		900	30	6	1
4	7	4	-	19	15	34				10		1320	44	5	3
	8	1	-	-	-	-				8	8	480	16	1	1
general		13	43	110	47	200	8	1		23	8	7200	240	42	12

6. STRATEGIES, TEACHING METHODS AND ARTIFICIAL INTELLIGENCE, MONITORING AND ASSESSMENT

<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 with:</p> <ul style="list-style-type: none"> • the use of innovative technologies; • 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: • * multimedia training programs; • * electronic textbooks; • * digital resources. • * machine learning methods <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 (according to syllabus). Assessment forms:</p> <ul style="list-style-type: none"> • survey in the classroom; • testing on the topics of the academic 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. Intermediate certification is carried out in accordance with the working curriculum, academic calendar. Forms of conducting:</p> <ul style="list-style-type: none"> • exam in the form of testing; • oral examination; • written exam; • combined exam; • project defense; • protection of practice reports. <p>Final state certification.</p>

7 EDUCATIONAL AND RESOURCE SUPPORT FOR EP

<p>Information Resource 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

on the Educational program "6B01502 Computer science(IP)"

Director of DAA  Naukenova A.S.

Director of DASC  Nazarbek U.B.

RECENZI

for an educational program in the specialty 6B01502- Computer Science (IP) developed at the M.Auezov Law School, Shymkent

A general description of the educational program is available on the university's official website. A full description of the program, including qualifications, mode of study, and duration of study, is provided. The program's focus, scope of application, key and professional competencies, and a specific list of professional tasks graduates will be prepared to tackle are also detailed.

The program's disciplines cover the entire required set of key and professional competencies stipulated by the State Educational Standard and fully comply with state educational standards and current labor market requirements. There is a strong emphasis on practice-oriented learning. Learning outcomes are correlated with the developed competencies in a matrix.

The curriculum is relevant and reflects modern advances in information science and pedagogy. The balance between theoretical and practical training is high.

The curriculum structure includes cycles of general education subjects and cycles of specialized subjects.

The curriculum content of the educational program is impeccable and relevant. Course descriptions fully explain their theoretical foundations.

Responding to the demands of the times, the educational program 6B01502 – Computer Science (IP) trains highly qualified specialists who not only possess creative thinking but also effectively apply advanced technologies in computer science education.

Head of the Department of
Engineering and Information **КАДР**
Technology Central Asian Innovation
University, Candidate of Technics, Acc. Professor  E.Tenizbayev

