Ф.7.02-10

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

«APPROVED»
Chairman of the Board-Rector
_____D.Zh.Ahmed-Zaki
«_____»_____2025

EDUCATION PROGRAMME

6B01508- Science

Registration number	
Code and classification of the field of Education	6B01-Pedagogical science
Code and Classification of Areas of Training	6B015-Training of teachers in Natural science subjects
Group of educational programs (EP)	B013
Typeof EP	innovative
ISCE level	6
NQF level	6
IQF level	6
Language learning	Kazakh, Russian
The typical training period is	4 years
The complexity of EP	240 credits
Distinctive features of EP	
Partner University (JEP) -	
University partner (DDEP) -	-

Shymkent, 2025

Developers:

Full Name	Position	Signature
Isaev Y. B.	Head of the chair, c.b.s, associate professor	
Tasbolat B.	Doctor of Geographical Sciences, Associate Professor	
Nurtileuova S.R.	Master of Geography, senior lecturer	
Bahbai D	student of the EP-23-21k group	
Saykhanova S.	student of the EP-23-21k group	
Sikhimbayev A.E.	Director of the NGO " BIOS"	
Baimuratova A.A.	Director of secondary school No. 62 named after N.Torekulov	
Nysanbayeva Zh.T.	Director of the IT school-Lyceum No. 24 named after S.Yerubaev	
Kaikenov G.Zh.	The director of the gymnasium No. 26 named after Zhambyl	
Almahankyzy R.A.	Director of IT Lyceum No. 7 named after K.Spataev	

The OP was considered at a meeting of the Academic Quality Committee of the «Natural Sciences and Pedagogy» Higher School,

Minutes # ___ «_____» _____ 2025 y.

Chairman of the Committee _____ A.Z.Tursynbaev

The EP was considered and recommended for approval at Educational-methodical meeting of M. Auezov SKU

Minutes # « » 2025 y.

Chairman of the EMM_____ E.Imangaliyev

The EP was approved by the decision of the Academic Council of the University

Minutes # « » 2025 y.

CONTENT

1. CONCEPT OF THE PROGRAM

University Mission	Generation of new competencies, preparation of a leader who translates research thinking and culture
UniversityValues	• Openness– 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	Development of research, information and digital skills, development of functional literacy, critical thinking, interdisciplinarity and development of flexible skills, student-centered learning principles
Academic Integrity and Ethics Policy	The university has taken measures to maintain academic integrity and academic freedom, protection from any type of intolerance and discrimination: • Rules of academic integrity (order No. 212 of October 10, 2022); • Anti-corruption standard (order No. 221 n/a dated 12/07/2021). • Code of Ethics (Order No. 212 of October 10, 2022)

Regulatory and legal framework for the development of EP	1.Law of the Republic of Kazakhstan "On Education"; 2. Model rules for the activities 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. 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 with amendments and additions dated 06/02/2023. No. 252 4. State General Education Standard of Higher and Postgraduate education" Order No. 2 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022, as amended by Order No. 90 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated 03/04/2025 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; with changes and additions from 09/23/2022. No. 79 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. 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 n/k 9. The State general education standard of secondary education. Order of the Minister of Education of the Republic of Kazakhstan dated August 3, 2022 No. 348
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 Educational Program and its evaluation • Systematic monitoring • Actualization of 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 dated October 31, 2018, with changes and additions dated June 2, 2023. No. 252
Conditions for the implementation of educational programs	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

(EP) for persons with disabilities and special educational needs(SSN)	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 of highly qualified teaching staff in the field of natural science, capable of developing knowledge, skills, abilities, and the intellectual, moral, creative, and physical development of the student's personality.
Tasks of the EP	- formation of socially responsible behavior in society, understanding the importance of professional ethical standards and following these standards; - providing basic undergraduate training to enable them to continue their studies throughout their lives, to adapt successfully to changing conditions throughout their professional careers; - providing conditions for the acquisition of a high general intellectual level of development, mastering competent and developed speech, culture of thinking and skills of scientific organization of work in the field of training future teachers of biology in accordance with the updated content of secondary education; - training of a multilingual biology teacher with knowledge of Kazakh, English and Russian languages and methods of teaching biology in three languages in secondary schools; - 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; - establishing conditions for the development of in-demand knowledge and skills, as well as a conscious attitude towards enhancing the welfare of society and conserving the planet within the framework of the SDGs.
HarmonizationofEP	• 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); • 6thLevel of European Qualification Framework for Life long Learning).
Connection of the EP with the professional sphere	Professional standard for teachers of educational organizations, Order of the Minister of Education of the Republic of Kazakhstan dated February 24, 2025 No. 31
Name of the degree awarded	After successful completion of this educational program, the graduate is awarded the degree: «Bachelor 6B01508- Natural Science»
List of qualifications and positions	Natural Science teacher in various educational institutions, educational institutions without presenting requirements for work experience in accordance with the qualification requirements of the Qualification Directory for the positions of managers, specialists and other employees, approved by order of the Minister of Labor and Social Protection of the Republic of Kazakhstan No. 553 dated 12/30/2020.
Field of professional activity	The sphere of professional activity is the field of education and science.
Objects of professional activity	A Bachelor's degree in the 6B01508-Natural Science (IP) program can pursue the following professional activities: - Pedagogical - Educational - Upbringing
Subjects of professional activity	educational organizations (general education and specialized schools, ungraded schools, lyceums, gymnasiums)

Types of professional activity	pedagogical activity
Learning outcomes	LO1- To develop own moral and civic position, acting in accordance with the social, business, cultural, legal and ethical standards of the Kazakh society, using the foundations of socio-political, economic and legal knowledge, demonstrating personal and professional competitiveness; LO2 - To assess situations in various areas of interpersonal, social and professional communication in oral and written forms in the state, russian and foreign languages to develop language competencies; LO3 - To use various types of information and communication technologies, modern methods of processing and synthesizing information in the field of scientific and pedagogical research, use CLIL technologies and artificial intelligence for subject-language teaching of natural subjects. LO4 - To focus on a healthy lifestyle to ensure the sustainable development of society and nature, full-fledged social and professional activities; LO5 - To develop, implement and evaluate integrated lessons using STEM learning in various types of educational environments, taking into account the principles of student-centered, competence-based, inclusive approaches; LO6 - To carry out the choice of methodology and analysis for planning, conducting, collecting and processing data from laboratory and field studies; LO7 - To develop intellectual and creative abilities, critical thinking, teamwork skills, perception and interpretation of natural science information, leadership qualities and other flexible skills; LO8 - To carry out the educational process and evaluate students' academic achievements using digital technologies and artificial intelligence, integrate knowledge of related sciences necessary for daily professional activities and the formation of functional literacy of students.; LO9 - To use the conceptual theories and laws of natural sciences to explain the patterns of the relationship between nature and society, predict natural phenomena and processes observed in everyday life; LO10 - To use the fundamental basics of the the natural science cycle disciplines, modern trends in the development of natural sciences; LO11 - To apply the results of research activities in practice, taking into account the global and local context, as well as the goals of Sustainable Development, use research, entrepreneurial, and work skills in an environment of uncertainty. LO12 - to create and offer solutions to non-standard problems, to model and carry out natural science and pedagogical research using the skills of academic writing, the principles of academic honesty.

3. COMPETENCES OF THE GRADUATE OF EP

SOFT SKILLS. Behavioral skills and personality qualities	
SS1. Competence in managing one's own literacy	SS1.1. The ability to self-learn, self-develop and constantly update their knowledge within the chosen trajectory and in an interdisciplinary environment. SS1.2. Ability to express thoughts, feelings, facts and opinions in the professional field. SS1.3. The ability to mobility in the modern world and critical thinking.
SS 2. Language competence	SS2.1.The abilitytobuildcommunicationprograms in thestate, Russian and foreignlanguages. SS2.2. The abilityfor interpersonal social and professional communication in theconditionsofinterculturalcommunication.
SS 3. Mathematical Competence and Competence in the field of Science	SS3.1.The ability and willingness to apply then educational potential, experience and personal qualitiesacquiredduringthestudyofmathematical, naturalscience, technicaldisciplines at theuniversitytosolve professional problems.
SS 4. Digitalcompetence, technologicalliteracy	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, socialandacademic 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. The aility to social and cultural development based on the manifestation of citizenship and morality. 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. Entrepreneurialcompetence	SS6.1. The abilitytobecreative and entrepreneurial in a varietyofenvironments. SS6.2. The abilitytowork in a modeofuncertainty and rapid lychangingtask conditions, makedecisions, allocateresources and manage your time. SS6.3. The abilityto work withconsumerrequests.
SS 7. Culturalawarenessandabilitytoexpressyourself	SS7. - the ability to know and understand the traditions and culture of the peoples of Kazakhstan, is tolerant to the traditions and culture of other peoples of the world, is aware of the installation of tolerant behavior; is not subject to prejudice, has high spiritual qualities, is formed as an intelligent person.
PROFESSIONAL COMPETENCIES(HARD SKILLS).	
Theoretical knowledge and practical skills specific to this field	PC1 - Be able to generalize and analyze the cause-and-effect relationships between phenomena and processes occurring in a geographical environment to present the idea of the unity and integrity of nature, the organic unity of man with nature.
	PC2 - The ability to apply modern teaching methods and assessment tools to students in the learning process, to develop the professional skills of teachers through reflection, analysis and experimentation (observation).
	PC3 - The ability to explain the natural, economic, and social factors that shape and change the human environment at levels from global to local, to identify and justify the diversity of factors and the presence of complex and nonlinear relationships between them.

	PC4 - The ability to know and understand the features and properties of geographical maps and are able to distinguish cartographic image methods and principles for understanding the spatial and temporal model of natural objects.
	PC5 - Ability to apply information technology to broaden students' scientific understanding in the field of natural science; develop and conduct demonstration experiments and practical work; use digital tools to create maps, as well as to obtain, store, process, and transmit information in the field of natural science; apply CLIL technologies of subject-language integrated learning in the teaching of natural science, promoting the development of students' intercultural knowledge and the formation of analytical and critical thin
	PC6 - The ability to design and implement educational solutions using digital technologies, methods and technologies of artificial intelligence.
	PC7 - Skill in managing the educational process in the field of natural science using interactive and practice-oriented teaching methods.

3.1 Matrix of correlation of the results of training in the OP as a whole with the competencies being formed

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
SS 1	✓	✓	✓									
SS 2	✓			✓	✓							
SS 3		✓				✓					✓	
SS 4	✓			✓					✓			
SS 5		✓	✓									✓
SS 6		✓									✓	✓
SS 7					✓						✓	✓
PC1				✓	✓		✓					
PC2		✓				✓		✓				
PC3		✓				✓		✓				
PC4			✓							✓	✓	
PC5							✓		✓	✓		
PC6								✓	✓	✓	✓	
PC7		✓	✓	✓				✓			✓	✓

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

№	The name of the module	CYCLE	UC/CC	Component name	Short description of the discipline	Number of credits	The generated RO (codes)											
							LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
GENERAL MODULES																		
	Module of Historical and Philosophical Competencies	GED	CC	History of Kazakhstan	Purpose of the discipline**:**The formation of an objective idea of the history of Kazakhstan based on a deep understanding and scientific analysis of the main stages, patterns and originality of the historical development of Kazakhstan. Content: Ancient people and the formation of nomadic civilization. Turkic civilization and the great steppe. Kazakh Khanate. Kazakhstan in the era of modern times. Kazakhstan as part of the Soviet administrative-command system. Declaration of Independence of Kazakhstan.State system, socio-political development, foreign policy and international relations of the Republic of Kazakhstan. Methods and techniques of historical description for the analysis of the causes and consequences of events in the history of Kazakhstan.	5												✓	
		GED	CC	Philosophy	Purpose of the discipline**:**The formation of a holistic idea among students about philosophy as a special form of knowledge of the world, about its main sections, problems and methods of studying them in the context of future professional activity. And also the formation of philosophical reflection, introspection and moral self-regulation among students. Content: Emergence of a culture of thinking. Subject and method of philosophy. Fundamentals of philosophical understanding of the world: questions of consciousness, spirit and language. Being. Ontology and metaphysics. Cognition and creativity. Education, science, technology and technology. Human philosophy and the world of values. Ethics. Philosophy of values. The subject of	5	✓												

					aesthetics as a field 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 a new Kazakhstan philosophy.													
	Module of Socio-Political Knowledge	GED	CC	Sociology and Politology	Purpose of the discipline**:**The goal of forming knowledge about social and political activities, explaining social and political processes and phenomena. Content:Consideration of the system of socio-ethical values of the society. Ways to use social, political, cultural, psychological institutions, features of youth policy in the modernization of Kazakhstani society and solve conflict situations in society and professional environment based on them.To study the methods of analysis and interpretation of political institutions and processes, ideas about politics, power, state and civil society, to understand and use the methods and methods of sociological, comparative analysis, to understand the meaning and content of the political situation in the modern world. Analysis and classification of the main political institutions. Socialization, identity and deviant behavior: the role of an inclusive approach	4	✓												
		GE D	CC	Cultural Studies and Psychology	Purpose of the discipline**:**The formation of scientific knowledge of history, modern trends, current problems and methods for the development of culture and psychology, the skills of a systematic analysis of psychological phenomena. Contents: Morphology, language, semiotics, anatomy of culture. Culture of nomads, proto-Turks, Turks. Medieval culture of Central Asia. Kazakh culture at the turn of the XVIII - XIX centuries, XX century. Cultural policy of Kazakhstan. State Program "Cultural Heritage". National consciousness, motivation. Emotions, intellect. The will of man, the psychology of self-regulation. Individual typological features. Values, interests, norms are the spiritual basis. The meaning of life, professional self-determination, health. Communication of the individual and groups. Socio-psychological conflict. Models of	4	✓												

					behavior in conflict. Social and psychological foundations and development of an inclusive culture in modern society. Psychological characteristics and conditions for professional adaptation of individuals with special needs. Psychological support and tolerance as a way of social integration of people with special needs. Social and psychological barriers to interaction of people with special needs in modern society.														
	The Basis of Social and Physical Development	GED	EC	Ecosistem and Law	Purpose: Formation of integrated knowledge in the field of economics, law, ecology and life safety, research methods to achieve sustainable development of society. Contents: Fundamentals of safe interaction between man and nature, productivity of ecosystems and the biosphere. Improving the competitiveness of entrepreneurial activity of society, business and the national economy in conditions of limited resources within the framework of sustainable development goals of Kazakhstan. Systemic understanding of environmental issues and principles of sustainable development. Knowledge and observance of Kazakhstan's rights, duties and guarantees of subjects, state regulation public relations to ensure social progress. Inclusion is a strategy of international law.	5	✓												
		GED	EC	Entrepreneurship and Financial Literacy	**The purpose:** Training skills in entrepreneurial activity organization, in managing personal and family financial resources, which are key to achieving financial well-being. **Content:** Entrepreneurship: essence, contents and conditions of formation. Legal forms of entrepreneurship. Risks in entrepreneurship. Business planning in entrepreneurship. Organization of entrepreneurial transactions. Culture and ethics of entrepreneurship. Financing of entrepreneurial activity. The concept, goals and objectives of financial literacy. Money, settlements, and payments. Personal finance: income, expenses, budget. Taxes and taxation of individuals. Pensions and insurance. Banking services for the population. Bankruptcy of individuals and financial risks. Pyramid scheme and personal financial security.												✓	

		BD	EC	Abai Studies	Purpose of the discipline**:**based on the creativity of A.Kunanbayev, the preservation of the «national code» and in the project «Kazakhtanu» Content:Historical overview of the history of Kazakhstan and Kazakh literature of the XIX-XX centuries. Studies of Abai's legacy of the XX-XXI century. Chronology of Abai's creativity. Abai is a great poet, ethnographer, founder of Kazakh written literature. Abai is the compiler of the code of laws «The Position of Karamola», social significance. Abai is a thinker, religious scholar, philosopher. The role of Abai in education and science, the concept of a «Holistic person». «Words of Edification»by Abai, an epic novel by M.Auyezova«The Way of Abai» . K. Tokayev«Abai and Kazakhstan in the XXI century», role, significance.	3											✓	
		BD	EC	Muhtar Studies	Purpose of the discipline**:**Formation of a historical, literary idea of M. Auezov's work in the context of literary history, patriotism and cultural and spiritual position. Development of artistic thinking, skills of independent research activity. Content: The life and creative path of M. Auezov Semipalatinsk, Tashkent, St. Petersburg periods. M. Auezov's activity in the magazines «Sholpan», «Abai». M. Auezov's journalism. An artistic review of the short stories "Korgansyzdyn kuni", "Kyr suretteri", "Okagan azamat", "Kokserek", the play Enlik-Kebek and the stories "Kili Zaman", "Karash-Karash" okigasy", the monograph "Abai Kunanbayev", the epic novel "Abai Zholy".											✓	
		BD	EC	Fundamentals of artificial intelligence	Purpose**:** To develop competencies in the use of knowledge and practical application of artificial intelligence tools and methods, in alignment with the priorities of the AI-Sana program. **Contents:** Introduction to Artificial Intelligence (AI). Development of practical skills and abilities, including: using AI tools; working with large language models (LLMs); utilizing no-code AI platforms; employing generative AI tools; image recognition; natural language processing (NLP); and data visualization through AI.				✓									✓

					Understanding the application of AI in various fields and exploring its potential through the integration of AI-Sana program approaches													
		BD	EC	Fundations of of Anticorruption Culture	Purpose of the discipline**:**formation of an anti-corruption worldview, strong moral foundations of a personality, civic position, stable skills of anti-corruption behavior. Content: Overcoming legal nihilism, formation of the basics of students' legal culture in the field of anti-corruption legislation. Formation of a conscious perception/attitude towards corruption.Moral rejection of corrupt behaviour, corrupt morality and ethics.Development of skills necessary to fight corruption.Development of anti-corruption standards of conduct.Anticorruption propaganda, dissemination of lawfulness and respect for the law. Activities aimed at understanding the nature of corruption, awareness of social damage caused by its manifestation, ability to defend one's position with arguments, seeking ways to overcome manifestation of corruption.											✓	
		GE D	CC	Physical Training	Purpose of the discipline**:**the formation 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; to the persistent transfer of physical exertion, neuropsychic stresses and adverse factors in future work. Content: Implementation of physical culture and health and training programs. A complex of general development and special exercises. Sports (gymnastics, sports and outdoor games, athletics, etc.). Control and self-control during classes, insurance and self-insurance. Refereeing competitions, Means of professionally applied physical training. Modern health-improving systems: the breathing system according to A. Strelnikova, K. Buteyko, K. Dinaiki, joint gymnastics according to Bubnovsky.	8								✓				
Additional modules beyond the qualification framework																		

	Instrumental and Communication Module	GED	CC	Kazakh (Russian) language	Purpose of the discipline**:** formation of students' intercultural and communicative competence in the process of foreign language education at a sufficient level A2 and a level of basic sufficiency B1. Student reaches B2level of common European competence if the language level at the start is higher than B1level of common European competence. Content: Levels A1, A2, B1, B2 are presented in the form of cognitive-linguocultural complexes, consisting of spheres, themes, sub-themes and typical situations of international standard'scommunication: social, social - cultural, educational and professional, modeled by forms: oral and written communication, written speech works, listening.Demonstration of language material'sunderstanding in texts on educational program, knowledge of terminology and critical thinking development.Purpose of the discipline**:**formation of communicative competence using the Kazakh (Russian) language in the socio-cultural, professional and public life, improvement of the ability to write academic texts. 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, themes, sub-themes and typical situations of communication of the international standard: social, social - cultural, educational and professional, modeled by forms: oral and written communication, written speech works, listening. Demonstration of understanding of the language material in the texts on the educational program, knowledge of terminology and development of critical thinking.	10			✓		✓										
		GED	CC	Foreign language	Purpose of the discipline**:** formation of students' intercultural and communicative competence in the process of foreign language education at a sufficient level A2 and a level of basic sufficiency B1. Student reaches B2level of common European competence if the language level at the start is higher than B1level of common European competence.	10			✓		✓									

					Content: Levels A1, A2, B1, B2 are presented in the form of cognitive-linguocultural complexes, consisting of spheres, themes, sub-themes and typical situations of international standard'scommunication: social, social - cultural, educational and professional, modeled by forms: oral and written communication, written speech works, listening.Demonstration of language material'sunderstanding in texts on educational program, knowledge of terminology and critical thinking development.													
		GED	CC	Information and Communication Technologies	Purpose of the discipline**:** formation of the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, methods of collecting and transmitting information through digital technologies. Development of new "digital" thinking, acquisition of knowledge and skills in the use of modern information and communication technologies in various activities **Contents:** Introduction and architecture of computer systems. Software. Operating systems. Human-computer interaction. Database systems. Data analysis. Data management. Networks and Telecommunications. Cybersecurity. Internet technologies. Cloud and Mobile technologies. Multimedia technologies. Smart technology. E-technologies. Electronic business. Electronic government.	5			✓		✓							
		BD	EC	Advanced Foreign Language	The purpose of learning an advanced foreign language is to develop a high degree of language proficiency sufficient for its use in various professional and social spheres, as well as for self-improvement in the language being studied. Content: Fundamental concepts. Grammar and vocabulary; Understanding speech; Speaking; Reading, understanding complex texts; Characteristic English grammatical constructions.	4											
INTERDISCIPLINE MODULES																		

	Basics of Psychological and Pedagogical Preparation	BD	Hs C	Psychology in Education and Concepts of Interaction and Communication	**Purpose:** to master modern psychological theories, concepts of formation, development, functioning of the human psyche, functioning of personality and individual properties, application in teaching to support the positive development of students, mastering competencies for interaction, communication and cooperation in partner networks, to create new relationships, to develop their own teaching activities. **Contents:** Basic concepts and terms of educational psychology, basic practical applications of psychological knowledge; patterns, facts and phenomena of cognitive and personal development of a person in the processes of learning and upbringing; an integrated approach to the design, implementation, evaluation and development of educational environments; the concept of continuous learning as part of the process of cognitive and personal development of a person; basic concepts and theories communication and interaction at the individual, social and interpersonal levels; methods of communication and interaction that are most suitable for facilitating learning in various forms (offline, online, mixed, hybrid); features of behavior in a group.	4	✓								✓			
		BD	Hs C	Psychological and pedagogical assessment (pedagogical practice, 2nd year)	**This practice** is aimed at developing the following areas of pedagogical competence: - Competencies in the field of pedagogy and didactics - The area of competence for interaction - The area of competence for the working environment of teachers - Area of competence for professional development The purpose of this practice is to familiarize future teachers with the features of the holistic pedagogical process of an educational institution and to develop analytical, reflective, research, design and other skills in the field of psychological and pedagogical support of the educational process.	2							✓			✓		
	Supporting Learners as Individuals	BD	Hs C	Educational Science and Key	**Purpose:** to expand and form knowledge about learning theories, modern didactic concepts and innovative learning technologies.	3									✓			

				Theories of Learning	**Content:** fundamentals of pedagogical science, such as conceptual representations of a person, leading to various theories of learning and pedagogical models. Based on an understanding of theoretical concepts, students can make appropriate pedagogical choices for different learning situations.													
		BD		Introduction to the teaching profession (1st year pedagogical practice)	**This practice** is aimed at developing the following areas of pedagogical competence: -Competencies in the field of pedagogy and didactics -The area of competence for interaction -The area of competence for the working environment of teachers -Area of competence for professional development The purpose of this course is to familiarize future teachers with the educational process and the situation in the organization of education and their adaptation to the conditions of future professional activity.	1								✓		✓		
		BD	Hs C	Inclusive Educational Environment	**The purpose** of the discipline is to familiarize students with modern international and domestic theories of inclusive education, and to develop professional competencies in designing and organizing inclusive education for future teachers. **Content:** Social significance and features of inclusive education. Patterns, principles and models of inclusive education, regulatory and legal documents regulating the activities of inclusive education in a mass school. Approaches and technologies for organizing inclusive education in educational institutions. Methods of psychological and pedagogical support and creation of a comfortable environment for inclusive education of children with special educational needs. Problems of creating an inclusive educational environment.	3									✓			
		BD	Hs C	Age and Physiological Features of the Development of Children	**The purpose** of the discipline is to provide future teachers with up-to-date knowledge about the anatomical and physiological features of the body of children and adolescents, their relationship with the environment, and to equip them with knowledge about the patterns underlying the preservation and strengthening of the	3									✓			

					health of schoolchildren, maintaining their high efficiency in various types of educational activities. **Contents:** The growth and development of the body; the development of the nervous system, the formation of higher nervous activity and its formation in the process of child development. Features of the development of sensory, endocrine, musculoskeletal, respiratory, digestive, blood and cardiovascular systems. The basics of protecting the health of schoolchildren, familiarization with the rules of a healthy lifestyle.														
	Teaching and Assessment for Learning	BD	Hs C	Teaching Planning and Individualizatio n of Learning Natural Science	**The purpose:** to develop individualization skills in teaching, taking into account the diversity of students and the use of natural science teaching technologies, based on pedagogical and independent research. **Contents:** Theoretical foundations of educational process planning, types and structure of planning, individualization and differentiation of learning, use of modern educational technologies, monitoring and evaluation of individual learning outcomes, practical implementation of planning and individualization.	4				✓									
		BD	Hs C	Teaching Methods and Technologies Natural Science	**The purpose** to develop professional knowledge, skills and abilities in the use of effective methods, techniques and modern educational technologies aimed at improving the quality of education. **Contents:** methodological system of natural science teaching, modeling strategies and technologies for solving specific pedagogical problems, planning, guidance, teaching and evaluation, the use of knowledge, forms, methods and technologies of natural science teaching in accordance with the conditions of a particular school and the capabilities of students, pedagogical models suitable for their learning, the use of a suitable learning environment in their teaching, knowledge and application of the norms and principles of copyright and data protection	5				✓									
		BD	Hs C	Assessment and Development	**Purpose:** to develop theoretical knowledge and practical skills in the field of assessing students' educational achievements.	4				✓									✓

					Content: Students have a deep understanding of the importance of assessment in the learning process and are able to provide constructive assessment in an ethical manner at various stages of the learning process and involve students in assessment. Students can identify, differentiate, and use various assessment technologies, principles, stages, and tools for evaluating their field of expertise (including formative and summative assessment, self-assessment, and mutual assessment, etc.). They are able to critically evaluate and analyze their understanding and practices related to assessment, and develop them further.												
				Pedagogical Approaches (pedagogical practice, 3rd year)/dual	**Purpose:** comprehensive development of future teachers, improvement of professional qualifications in practice and the formation of subject competencies necessary for work as a teacher (Preschool Teacher, Primary School teacher, subject teacher, assistant/curator of the class teacher). **Content:** independent design and organization of a constructive and inclusive educational process, selection of appropriate and suitable educational materials, innovative pedagogical approaches and active learning, taking into account the use of educational technologies and the digital environment, the use of subject knowledge and didactics, the use of methods and technologies of formative and aggregate assessment, support for the development of students ' skills of reflection, self - assessment and mutual assessment.	3										✓	✓
	Teacher as a Reflective Practitione	BD	Hs C	Pedagogical Research	**Purpose:** to develop students' knowledge, skills and abilities necessary for independent planning, conducting and analyzing pedagogical research aimed at solving urgent problems of education and upbringing. **Content.** Theoretical foundations of pedagogical research. They have the skills to search for and critically select theoretical knowledge from various reliable sources, use research results in developing their pedagogical thinking and practice, and show a willingness to promote research-based learning and	4						✓						✓

					education, as well as their own continuous development and professional growth.													
		BD	Hs C	Action Research	**Purpose:** to develop students' skills in planning, implementing, and analyzing the effectiveness of using Action Research approaches in geography teaching. **Content:** the implementation of the approach for the study of the Lesson Study class is considered, the stages of this approach are: planning, conducting a research lesson, analyzing it, rescheduling taking into account the results obtained in the learning process. The characteristics of the stages are discussed in order to analyze the reaction of the "studied" students to the method used, as well as the experience gained for further improvement of teaching methods. The stages of the implementation of the Action Research approach are described, and examples of the implementation of the Action Research approach in a real classroom are given.										✓		
		BD	Hs C	Research, Development and Innovation of Natural Science	**Purpose:** to form a research- and development-oriented mindset, the ability to develop, update and apply innovative approaches and technologies for teaching natural sciences in the context of ongoing changes in society and the educational environment. **Content:** teaching skills using research-based approaches, critical thinking in collecting and using data for software development, scientific research or development, collaboration between universities and stakeholders, documentation of their own research activities and presentation of results using various forms of communication	5									✓			
		BD	Hs C	Lesson Study	**Purpose:** to develop students' skills in planning, implementing and analyzing the effectiveness of using Lesson Study approaches in geography teaching. **Content:** the implementation of the approach for the study of the Lesson Study class is considered, the stages of this approach are: planning, conducting a research lesson, analyzing it, rescheduling taking into account the results obtained in the learning process. The characteristics of the stages are discussed in order to			✓										

					analyze the reaction of the "studied" students to the method used, as well as the experience gained for further improvement of teaching methods.													
		BD		Industrial Practice (pedagogical, 4th year)	**The purpose** of industrial pedagogical practice I is to deepen theoretical knowledge in general scientific, cultural, psychological, pedagogical, methodological and basic and professional disciplines, as well as to refine knowledge of disciplines during practice, the formation of pedagogical skills and competencies. **Contents:** Knowledge of all the basic actions of the teacher and the class teacher in the integrity system using the experience of teachers-methodologists; mastering the basics of student work with parents; mastering deep psychological and pedagogical methods of personality in unity through the study and analysis of the educational situation, mastering methods of analysis and introspection of various forms of educational work.	10								✓		✓	✓	
SPECIALITY MODULES																		
	Natural Scientific Picture of the World	PD	EC	Biology and biodiversity of living organisms	**Purpose:** to study the diversity of life on Earth, to understand the interrelationships between organisms and their habitat, as well as the conservation and sustainable use of this diversity for the benefit of man and the planet. **Content:** Definition and levels of biodiversity (genetic, species, ecosystem). Classification of living organisms. The main types of biological communities. Ecological niches. The influence of anthropogenic factors on biodiversity. Theories of evolution. The main processes of vital activity of organisms. The relationship of organisms to each other and to the environment. Ecosystems and their functioning. The circulation of substances and energy in nature.	10							✓					
		PD	EC	Environmental Chemistry	**Purpose:** Objective: to study the processes of interaction of chemicals with the environment and to develop methods for preventing and solving environmental problems related to pollution. **Content:** The subject of study and the tasks of environmental chemistry. The place of "environmental	6						✓						

					chemistry" in the system of natural science disciplines. The tendency of environmental change, the principle of Le Chatelier Brown. Chemistry of the atmosphere. Chemistry of the hydrosphere. Chemistry of the lithosphere. Comprehensive environmental analysis. Chemical pollutants and their impact on the biosphere. Types of pollution. Biogeochemical cycles.													
		PD	EC	Physics for Science and Engineering	**Purpose:** Purpose: to study the laws of nature and their application to solve practical problems, develop technologies and create new materials. **Content:** fundamental laws and principles, as well as their application in various engineering fields. Mechanics; Thermodynamics and statistical physics; Electrostatics; Electromagnetism, optics and elements of quantum mechanics.	9									✓			
		PD	EC	Science of nature	**Purpose:** to form a holistic understanding of the patterns of development of natural phenomena and processes, about fundamental scientific knowledge **Content:** the integrity of the natural science picture of the world, assessment, analysis of the laws of nature and promotion of their practical use in the interests of man. Improve self-study and activities by working individually or in pairs.	6										✓		
		PD	EC	General geography	**Purpose:**to study the structure of the general geographical shell, patterns of development, components and natural complexes of its structures at various levels. **Contents:** The history of Earth science in general. Geographical shell, its structural and characteristic features. Differentiation of space. The influence of common planetary factors on the geographical envelope. The circulation of matter and energy in a geographical shell. The solid, water and air layer of the Earth. The doctrine of the landscape sphere of the earth. Natural zonality.											✓		
		PD	EC	Applied Mathematics	**Purpose:** to develop and apply mathematical methods to solve problems in various fields of science, technology, economics, and other fields.	5								✓				

					Content: Fundamental mathematical disciplines. Special sections and methods: Optimization methods. Mathematical modeling in various fields. Scientific computing. Artificial intelligence systems. Data processing and analysis.													
		PD	EC	Mathematical statistics	**Purpose:** To develop methods for collecting and organizing statistical data obtained as a result of observations or experiments. **Contents:** Data collection and organization: Development of methods for collecting and systematizing statistical information, including the choice of observation and experimental methods. Descriptive statistics; Analytical statistics (statistical conclusions); Point and interval estimation; Verification of statistical hypotheses; Types of analyses.													
		PD	EC	Programming in the natural sciences	**Purpose:** to develop intellectual, creative abilities and critical thinking in the course of conducting the simplest research, analyzing phenomena, perceiving and interpreting natural science information using geoinformation programming. Content: Natural sciences and the development of engineering and technology. Programming in nature. Data structures in programming. Structural programming. Object-oriented programming.	5								✓				
		PD	EC	Basics of algorithmization and programming	**Purpose:** to develop students' skills in developing algorithms and writing programs for solving various tasks on a computer. Contents: An introduction to algorithmization. Types of algorithms: linear, branching, cyclic. Basic algorithmic structures. Basic programming concepts: program, programming language, translator. History and classification of programming languages.									✓				
	Applied and integrated Sciences	PD	EC	Systematization of natural science knowledge	**Purpose:** to organize and structure disparate knowledge about nature, identify the relationships between various phenomena and processes, and ensure their more effective use and application. **Content:** Formulation and systematization of fundamental laws of nature, such as conservation laws,	5						✓						

					laws of thermodynamics, Newton's laws, etc. Generalization and integration of theories explaining various natural phenomena. The study and systematization of methods used to obtain scientific knowledge.													
		PD	EC	Modeling of processes of animate and inanimate nature	**Purpose:** to understand and explain complex phenomena occurring in nature, as well as predict their development. **Content:** Population growth modeling. Modeling the work of ecosystems. Climate modeling: Study of global and regional climate changes, weather forecasting. River flow modeling: Study of water flow dynamics, flood forecasting, and development of water resource management systems. Modeling the motion of celestial bodies: Studying the trajectories of planets, stars and galaxies, forecasting solar eclipses.	6							✓						
		PD	EC	Substances and materials	**Purpose**: The goal: to understand their properties, structure, and behavior, as well as to learn how to use them to create new materials and solve practical problems. **Contents:** Classification of substances: Simple and complex substances, metals and non-metals, organic and inorganic substances. Properties of substances: Physical; Chemical; Mechanical. The interaction of substances and materials. Technologies of production and processing of substances and materials. Environmental aspects.	5						✓							
		PD	EC	Science, technology and society	The **purpose** of this course is to explore the interactions between science, technology, and society, as well as the effects these interactions have on different groups of people. **Content:** Interaction of science, technology and society. The social consequences of technology. Ethical and moral aspects of technology. Political regulation of science and technology. The role of science and technology in the modern world. History of science and technology. Sociology of science and technology.									✓					
		PD	EC	Energy and motion	**Purpose:** to study various forms of energy and their role in physical processes, including mechanical motion.	5										✓		

					Content: Mechanical energy. Thermal energy. Electrical energy: The energy of motion of charged particles. Radiation energy: Energy carried by electromagnetic waves (light, thermal radiation). Chemical energy. Nuclear energy. Mechanical movement: Movement of a body in space. Thermal motion: The chaotic motion of molecules and atoms. Electric motion: The motion of charged particles.														
		PD	EC	Biophysics and Bioinformatics	**Purpose:** a comprehensive study of biological systems using physical principles and computational methods. **Contents:** Physical and physico-chemical mechanisms of biological processes. Molecular biophysics. Cellular biophysics. Biophysics of tissues and organs. Ecological biophysics. Development and application of computer methods for the analysis of biological data. Main directions: Genomic Bioinformatics; Proteomics; Metabolomics; Systems Biology.														
		PD	EC	Green technology	**Purpose:** The goal is to create knowledge about reducing the negative impact of human activities on the environment and the conservation of natural resources, as well as improving the quality of life of people. **Content:** Development of renewable energy sources. Improving the energy efficiency of buildings and vehicles. Development and implementation of energy storage technologies. Reducing emissions of pollutants into the atmosphere and water bodies. The introduction of waste-free and low-waste technologies. The use of environmentally friendly materials and raw materials. Development of new waste disposal technologies.	5												✓	
		PD	EC	Nootechnology	**Purpose:**to have knowledge about the development and improvement of methods for obtaining various substances, such as medicines, food products, enzymes, bioplastics and much more, using new technologies. Content: Development of new technologies. Production of healthy products. Environmental safety: Creation of processes that minimize waste and negative impact on the environment. Improvement of production.													✓	

		PD	EC	GIS in geographical research	**Purpose:** The purpose of this course is to master GIS technologies for use as a powerful innovative means of teaching geography in general education institutions. **Content:** modern geoinformation methods that ensure the collection, storage, processing, display and dissemination of data. They also develop skills in using modern geoinformation methods in geographical research. Future teachers learn to develop, present, defend, and disseminate research results.	5						✓						
		PD	EC	Geoinformation modeling of natural resources	**Purpose**: The goal is to develop students' knowledge and skills for analyzing, processing, and using spatial data to study, evaluate, and manage natural resources, as well as to solve modeling and forecasting problems in this field. **Content:** Modeling of natural resources:Geological modeling. Hydrological modeling. Soil modeling. Forest modeling. Biological modeling. Modeling the use of natural resources: Land modeling. Water modeling. Modeling of forest resources. Analysis of the interaction of natural resources and the environment. Geoinformation technologies in the modeling of natural resources.							✓						
		BD	EC	Climate Change and its Consequences	**Purpose**: Objective: to provide students with an understanding of global climate change, its causes, mechanisms and consequences for various aspects of life on Earth, as well as to develop skills in analysis, critical thinking and decision-making in a changing climate. **Content:** Causes of climate change. Manifestations of climate change. Effects of climate change. Mitigation measures. Adaptation to climate change.	5											✓	
		DD	EC	Geoecology and nature conservation	**Purpose:** to form knowledge on the conservation and restoration of a favorable ecological state of natural and anthropogenic geosystems by studying the background of the environment, spatial ecology. **Content:** Subject, purpose and objectives, research methods and general structure of geoecology. Geoecology in the system of earth sciences. Theoretical and methodological foundations of geoecology. Human												✓	

					activity and the Earth's geosphere. Geoecological zoning of Kazakhstan. Regional environmental problems.													
		PD	EC	Educational mechatronics and robotics	**Purpose**: Purpose: to form knowledge in the field of mechanics, electronics, automation, programming and robotic complexes. **Contents:** Fundamentals of mechanics. Electronics and electrical engineering. Computer Science and programming. Management theory. Robotics. Sensorics. Mechatronic systems. Computer vision. Design and modeling. Industrial robotics. Service robotics. Mobile robotics. Medical robotics.	5					✓							
		PD	EC	Introduction to Robotics	**The purpose** of the discipline is to form knowledge in the field of robotics, to form their interest in this field, as well as to develop skills in designing, programming and solving technical problems. **Content:** The definition of robotics and its place in the modern world. The history of robotics development. An overview of different types of robots and their applications. The main components of robots (body, sensors, drives, controller). Safety when working with robots. Mechanics and construction. Electronics. Programming.						✓							
	Research and pedagogy in nature Sciences	PD	EC	Methods of teaching natural sciences	**Purpose:** to form a holistic scientific understanding of nature, to develop scientific thinking and cognitive interest, as well as to acquire practical skills and abilities of future teachers with the necessary knowledge for the effective organization and conduct of the educational process in natural sciences. **Content:** Definition of learning goals and objectives. Selection of the content of the educational material. Means and organizational forms of training. The theoretical foundations of the methodology of teaching natural sciences. Methods, means and forms of training organization. The peculiarities of teaching natural sciences in various conditions. Diagnosis and evaluation of learning outcomes. Innovative approaches to teaching natural sciences.	6						✓						

	Research and pedagogy in nature Sciences	PD	EC	Conceptual learning of natural science	**Purpose:** The goal is to form a holistic, systematic view of the world, as well as the development of critical thinking and research skills. Content: Basic scientific concepts and principles. Interdisciplinary connections. Methods of scientific knowledge. The study of the development of scientific knowledge, outstanding discoveries and scientists, the formation of an idea of how scientific concepts are formed. The applied value of science. Features of conceptual learning.	5						✓							
		PD	EC	Study of STEM Teaching Practices	**Purpose**: The aim of the course is to have basic knowledge and skills of critical thinking, problem solving, project approach and the ability to apply knowledge from different fields of science, technology, engineering and mathematics to solve real-world problems. **Content:** Integration of disciplines. Interdisciplinary approach. A practice-oriented approach. Designing and building robots. Solving engineering problems. Conducting scientific experiments. Creating apps and games	6						✓	✓						
		PD	EC	Research and project activities in nature sciences	**The purpose** of the discipline is to develop the skills to identify problems, collect and analyze information, conduct experiments, build hypotheses, and develop systems thinking and communication skills. **Contents:** The concept of research, its types and stages. Formulation of the research topic, goals, objectives, and hypotheses. The concept of the project, its structure and stages. Specific areas of research in the field of natural sciences. Interdisciplinary connections. Environmental education and enlightenment. The application of research and design skills in everyday life.								✓						
		PD	EC	Methods of experimental research	**Purpose:** Objective: to identify causal relationships between variables, testing hypotheses and expanding knowledge about a specific subject or phenomenon. **Contents:** The main stages of experimental research. Formulation of the hypothesis. Defining variables. Control of variables. Manipulation of an independent	6							✓						

					variable. Types of experiments: Physical experiment; Computer experiment; Psychological experiment; Thought experiment; Critical experiment; Pilot experiment.													
		PD	EC	Organization of scientific activities research	**Purpose:** to develop students' knowledge and skills necessary for independent scientific research, concepts and methods of organization and management of scientific activities. **Contents:** Theoretical foundations of science. Methodology of scientific research. Planning of scientific research. Conducting scientific research. Registration of scientific results. Evaluation of scientific research results. Organizational aspects of scientific activity. The main directions of scientific activity.								✓					
		PD	EC	Academic writing	**The purpose** of the discipline is to master the general rules and methods, skills of professional reading, academic writing and oral presentation based on the technique of cognition and its individual techniques. **Content:** Academic reading and writing skills, language and structure of scientific and professional texts. Taking notes, writing abstracts, abstracts, reviewing the results of scientific analysis, reading scientific and professional texts. Improving students' vocabulary through linguistic reversals characteristic of the scientific and professional environment used in academic vocabulary. Development of skills of participation in scientific and professional discussions and presentation of professionally oriented projects. Independent work skills.	5			✓								
		PD	EC	Content-Language Integrated Learning in Nature Science	**The goal** is to form future teachers' attitudes towards the development of their own professional activities and working environment. development and formation of professional competencies of a modern teacher in the field of teaching methods of an integrated natural science course. **Content**: The regulatory framework for teaching natural sciences in educational institutions. Didactic features of natural science as an integrated academic discipline. Modern science teaching kits for high schools. Scientific				✓								

					and methodological foundations of natural science teaching. A systematic approach and its application to the study of natural and social systems.													
	Module of final Certification	PD		Research and Innovation in Education (pedagogical practice, 4th year)	**Purpose**: Objective: to improve the quality of education, its effectiveness and relevance through the introduction of new methods, technologies, approaches and content. **Content:** Identification of problems and needs. Development and testing of innovative solutions. Evaluation of the effectiveness of innovations. Spreading successful experiences. Scaling up the implementation of innovations.	8											✓	✓
		PD		Writing and Defendininng a Thesis, a Graduate Work , or Preparing and Passing a Comprehensive Exam	**Purpose:** to form an idea of the general provisions on the design and protection of diploma works, preparation for final certification exams. **Content:** general provisions of the diploma work, selection and approval of the topic of the diploma work, scientific supervision of the preparation of the diploma work, the procedure for the formation of the content (plan) of the diploma work, selection and study of sources of information, collection and processing of practice material, basic requirements for the content and design of the diploma work, Protection of the diploma work, General.	8	✓	✓	✓	✓	✓	✓			✓		✓	✓

5.Summary table reflecting the volume of disbursed loans by EP modules

Course of training	Semester	Amount of the mastered modules	Amount of the studied disciplines			Amount of KZ credits					Total in hours	Total KZ credits	Amount	
			Compulsory component	University component	Optional component	Theoretical training	Physical education	Educa-tional practice	Manufac-turingpractice	Final Certifi-cation	Compulsory component	University component	Optional component	Theoretical training
1	1	4	6		1	29	2				930	30	6	1
	2	5	4	3	2	26	2	1	1		900	30	5	2
2	3	6	2	5	2	28	2				900	30	6	3
	4	5	1	2	6	27	2		1		900	30	6	2
3	5	6		2	5	30					900	30	6	1
	6	5		3	3	26			4		900	30	5	1
4	7	2			7	30					900	30	6	1
	8	2		2					10+8	12	900	30		2
итого		13	13	17	26	200	8	1	24	12	7230	240	40	13

6.Strategies, teaching methods and artificial intelligence, monitoring and assessment

Learning strategies	Student–centered learning: The student is the center of teaching/learning and an active participant in the learning and decision-making process. Practice-oriented training: orientation to the development of practical skills.
Teaching methods	Conducting lectures, seminars, various types of practices with: • 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 Organization of independent work of students, individual consultations.
Monitoring and evaluation of the achievability of learning outcomes	**Current control** on each topic of the discipline, control of knowledge in classroom and extracurricular classes (according to syllabus). Assessment forms: • surveyin the classroom; • testing on the topics of the discipline; • control works; • protection of in dependent work; • discussions; • trainings; • colloquiums; • essays, etc. **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: • exam in the form of testing; • oral examination; • written exam; • combined exam; • project protection; • protection of practice reports. **Final state certification.**

Educational and resource support for EP

Educational Information Center	The structure of the JRC includes 6 subscriptions, 16 reading rooms, 2 electronic resource centers (ERC). The basis of the JRC network infrastructure consists of 180 computers with Internet access, 110 automated workstations, 6 interactive whiteboards, 2 video duals, 1 video conferencing system, 3 A-4 format scanners, 3. JRC software - AIBS "IRBIS-64" for MSWindows (basic set of 6 modules), stand-alone server for uninterrupted operation in the IRBIS system. The library collection is reflected in the electronic catalog available to users on the website http://lib.ukgu.kz on-line 24 hours 7 days a week. Thematic databases of our own generation have been created: “Almamater”, “Proceedings of SKSU Scientists”, “Electronic Archive”. Online access from any device 24/7 via the external link http://articles.ukgu.kz/ru/pps. 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”, “SKSU in print”, “Readers” “SKSU”. JRC provides its users with 3 options for accessing its own electronic information resources: from the “Electronic Catalog” terminals in the catalog hall and JRC departments; through the university information network for faculties and departments; remotely on the library website http://lib.ukgu.kz/. Access to international and republican resources is open: “SpringerLink”, “Plenipotentiary Representative”, “Web of Science”, “EBSCO”, “Epigraph”, to electronic versions of scientific journals in open access, “Zan”, “RMEB”, “Adebiet” , Digital library "Aknurpress", "Smart-kitar", "Kitap.kz", etc. For persons with special needs and disabilities in the JIC, the library website has been adapted for use by users with low vision
Material and technical base	Specialized classroom with an interactive whiteboard - 106, 204. Classrooms - 205, 203, 301, 303 (building No. 7, Baitursynov St.). Republican state institution "Sairam - Ugam State National Natural Park" of the Committee for Forestry and Wildlife of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan. Branch on the right of economic management "Kazgidromet" of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan in the Turkestan region. School-gymnasium No. 26 named after Zhambyl. IT school-lyceum №7 named after K. Sypataev.

Professional standards

1. Professional standard “Teacher” (order of the Acting Minister of Education of the Republic of Kazakhstan dated 24. 02 2025 No. 31)

APPROVAL SHEET

for educational programme code 6B01508 –«Science»

Director of Departament
on the academic questions _____ A.Naukenova

Head of the Departament
of academic scince _____ U.Nazarbek