NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

6B01 - Pedagogical sciences
(Code and classifcation of the feld of education)

6B015 - Teacher training in natural science subjects
(Code and classifcation of the direction of training)

0114
(Code in the International Standard Classifcation of Education)

B012 - Chemistry teacher training
(Code and classifcation of the educational program group)

6B01509 - Chemistry-Biology
(Code and name of the educational program)

Bachelor
(Level of preparation)

Semey

Educational program

6B01 -- Pedagogical sciences
(Code and classification of the field of education)

6B015 - Training of teachers in Natural science subjects
(Code and classification of the direction of training)

0114
(Code in the International Standard Classification of Education)

B012 - Chemistry teacher training
(Code and classification of the educational program group)

6B01509 - Chemistry and Biology
(Code and name of the educational program)

Bachelor
(Level of preparation)

Semey 2024

PREFACE

Developed

The educational program 6B01509 - Chemistry and Biology in the direction of preparation 6B015 - Training of teachers Natural science subjects on the basis of the State Compulsory Standards of Higher and Postgraduate approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

Members of the Academic Committee	Full name	Academic degree, academic title, position
Head of the Academic Committee	Mukayev Zhandos	Dean of the Graduate School of Natural Sciences, PhD
Educational program manager	Ontagarova Dinar	Senior Lecturer at the Department of Chemistry and Biology, Candidate of Pedagogical Sciences
Member of the AC	Sharipkhan Dinara	Municipal government institution "Gymnasium No. 37 named after Ybyrai Altynsarin", chemistry teacher
Member of the AC	Kaliev Amangeldy	Municipal sta "Secondary comprehensive school No. 4", chemistry teacher
Member of the AC	Sapakova Aigul	Senior Lecturer at the Department of Chemistry and Biology, Candidate of Biological Sciences
Member of the AC	Sadykova Raigul	Senior Lecturer at the Department of Chemistry and Biology, Candidate of Agricultural Sciences
Member of the AC	Nurekenova Aigul	Associate Professor (Associate Professor) of the Department of Chemistry and Biology
Member of the AC	Bokenbaeva A.S.	HB-201 group student, 2rd year
Member of the AC	Almas Nurserik	HB-201 group student, 2rd year

Reviewing

Full name of the reviewer	Position, place of work
Sataeva Aigul	MSI "Secondary school № 16 named after T. Amanov", director of the school
Kuzenbaeva Ainur	MSI "Secondary school No. 4", director

Reviewed

At the meeting of the Quality Assurance Commission Natural and Mathematical of the faculty
Record No 3, January 09, 2024 y.
At the meeting of the Commission on Academic Quality
Recommended for approval by the Academic Council of the University
Protocol No. 1 "06" June 2024.

Agreed

Head of the education department of the city of Semey Bulabaev B.Z.

Approved

at a meeting of the University Academic Council by protocol No. 6/1 of January 19, 2024.

at a meeting of the University Academic Council by protocol No. 11 of June 28, 2024.

Content

1.Introduction

1.1.General data

The Department of Natural Sciences of the Faculty of Natural Mathematics provides training in the educational program "6B01509 Chemistry-Biology".

Bachelor`s degree programs in the educational program "6B01509 _chemistry- Biology" are conducted in full-time education on the basis of general secondary education, in distance learning – on the basis of higher education. The duration of full-time training is 4 years, distance learning-2 years.

When implementing the educational program, it is planned to use artificial intelligence tools in the educational process, thereby developing digital competencies among students in a rapidly changing technological environment.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process in the preparation of bachelors is the acquisition of at least 205 credits of theoretical training, as well as at least 27 credits of practice, not 8 credits for the preparation of diplomas. Total 240 credits.

1.3.Typical study duration: 4 year

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	Training a highly qualified competent teacher with interdisciplinary, practical and research, social and communication skills, focused on professional activities in the field of chemical and biological education.
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	6B01 - Pedagogical sciences
Code and classification of the direction of training	6B015 - Training of teachers in Natural science subjects
Code in the International Standard Classification of Education	0114
Code and classification of the educational program group	B012 - Chemistry teacher training
Code and name of the educational program	6B01509 - Chemistry and Biology
2.3.Distinctive features of the OP (double degree/joint, OVPO-partner, Double major, innovative)	The uniqueness of the EP Distinctive features and opportunities, the uniqueness of the educational program "6B01509 Chemistry-Biology" are: The program places special emphasis on modern innovative approaches along with the preservation of classical and traditional methods of teaching chemistry and biology at school. Availability of educational laboratories, equipped with laboratory equipment and instruments, allows students to form research skills for further employment in the field of education and science. The presence of continuity in two levels of bachelor`s and master`s programs makes it possible to deepen specialization in the profile, providing full-fledged teaching staff in the region.
2.4.Qualification characteristics of the graduate	
Degree awarded / qualification	Bachelor of education in the educational program
Name of professional standard	On approval of the professional standard "Teacher" Acting order Minister of Education of the Republic of Kazakhstan dated December 15, 2022 № 500. Registered with the Ministry of Justice of the Republic of Kazakhstan on December 19, 2022 №. 31149
Atlas of new professions	-
Regional standard	-
Name of the profession / list of positions of a specialist	teacher of chemistry and biology лаб laboratory assistant in educational organizations and research institutions the educational master должностные officials in educational organizations (Director of a general education institution, deputy directors for educational work, etc methodologist in educational organizations; специалист specialist in the field of pedagogical sciences; in research institutions
OQF qualification level (industry qualification framework)	6
Area of professional activity	research institutions;

	middle schools, and secondary professional education institutions; state educational management bodies; organizations of various forms of ownership that use methods of teaching chemistry in their work.
Object of professional activity	research institutions; middle schools, and secondary professional education institutions; state educational management bodies; organizations of various forms of ownership that use methods of teaching chemistry in their work.
Types of professional activity	apply modern pedagogical technologies in teaching chemistry; plan and carry out research work in the field of pedagogical sciences; conducting scientific and pedagogical activities in general education organizations; organizational and management; social and pedagogical; учебно educational.
2.5.Graduate Model	4.1 Acquired competencies expressed in achieved learning outcomes Able to master the skills of planning and conducting a chemical experiment, synthetic and analytical methods for obtaining and studying chemicals and reactions, - Able to perform standard operations according to the proposed methods Able to master the skills of using modern equipment in conducting scientific research Able to master the system of fundamental chemical concepts Able to apply the acquired knowledge of the theoretical foundations of the fundamental sections of chemistry in the analysis of the results obtained and solving professional problems Able to receive and process the results of scientific experiments using modern computer technologies Able to present the results of research in the form of brief reports and presentations Able to master the methods of safe handling of chemical materials, taking into account their physical and chemical properties Able to apply the principles of building pedagogical activity in educational institutions Able to plan, organize and analyze the results of their pedagogical activities 4.2 Personal qualities of a graduate - ability to solve complex problems; - critical thinking; - creative thinking; - skill to work in team; - the ability to recognize their own and other people`s emotions, manage them; - the ability to form judgments and make decisions; - Negotiation;

	- switching from one task to another.

3.Modules and content of the educational program

Module 1. Fundamentals of social and humanitarian knowledge

Brief description of the module content

This module reveals such aspects as: socio-cultural, economic-legal, environmental knowledge, communication skills, the use of information technology taking into account modern trends in the development of society.

Module disciplines

Foreign language

Kazakh(Russian) language (1)

Physical Culture

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Foreign language

Kazakh(Russian) language (2)

Bases of economics, law and ecological knowledge

Physical Culture

History of Kazakhstan

Physical Culture

Information and communication technology

Physical Culture

World of Abai

Philosophy

Module 2. Psychological-pedagogical and methodological training of personnel

Brief description of the module content

This module includes the study of the application of modern teaching technologies and criterion-based assessment, taking into account the individual, physiological and psychological characteristics of students.

Module disciplines

Introduction to the profession of teacher of chemistry and biology

Age psychology and physiology

Pedagogy

Educational practice

Inclusive education

Pedagogical practice

Pedagogical practice (psychological and pedagogical)

Methodology of chemistry training

Methodology of biology training

Scientific-methodical bases of teaching chemistry in small schools

Modern approaches to education

Technologies of the updated content of education and criteria assessment

Electronic educational resources

The tasks of high complexity in chemistry

Interdisciplinary communication school chemistry course

Methods of conducting a school chemical experiment

Methods of solving tasks of physical chemistry

Technique of the solution of tasks in chemistry

Pedagogical practice

Elective courses of Chemistry in core grades

Methods of organization of extracurricular work on the subject

The organization and forms of independent work of pupils in chemistry

Modern technologies in chemistry teaching

Module 3. Chemical Knowledge

Brief description of the module content

The module develops systems thinking through basic knowledge and understanding of basic concepts, laws and phenomena in the field of chemistry. The module gives a modern understanding of the structure of the atom, the state and movement of electrons in the atom; the concept of the periodicity of changes in the properties of elements, redox and acid-base properties of metals and non-metals, and their compounds; dependence of the properties of simple and complex substances on the type of chemical bond and crystal lattice; cause- and- effect relationships between the composition, structure, properties and use of substances, the importance of the development of science for understanding and holistic perception of the chemical picture of the surrounding world. The module develops the ability to generalize and systematize knowledge about the structure, properties and methods of synthesis of carbon compounds with other chemical elements, as well as the laws of their transformations; about the role of organic compounds and polymers in the existence of living organisms. The module stimulates students` interest in methods of organic and inorganic synthesis using physicochemical analysis. The module emphasizes the importance of modeling the scheme and equation of chemical reactions, mastery of chemical synthesis techniques, and the ability to make calculations using reaction equations.

Module disciplines

General and Inorganic Chemistry

Chemistry of the metals and nonmetals

Chemistry of heavy metals

Methods for extraction and purification of the substances

Chromatographic analysis

Qualitative and quantitative analysis

Organic chemistry

Chemistry of Organoelement compounds

Chemistry of natural compounds

Theory solution

Physical and colloidal chemistry

Cinetical of chemistry

Fuel Resources of Kazakhstan

Chemical industry of Kazakhstan

Chemical technology

Module 4. Biological knowledge

Brief description of the module content

The module “Biological Knowledge” provides students with advanced knowledge, skills and competencies in the field of plant, animal and human sciences. The module includes fundamental disciplines and is interconnected with the updated secondary education program. As a result of studying the module, students acquire skills in using methods of hybridological, cytological and population analysis, solving genetic problems and practical implementation of selection problems. The module also supports the professional development of biology teachers, building strong scientific knowledge in the subject area.

Module disciplines

Anatomy and Morphology of Plants

Taxonomy of higher plants

Evolutionary adaptation of plants

Plant Sistematic

Modern aspects of cultivation of cells and tissues of the body

Cytochemistry of the cell

Vertebrate and Invertebrate Zoology

Vertebrates of Kazakhstan

Comparative anatomy of vertebrates

Field training practice

Plant Physiology

Human anatomy

Anatomy, the basics of sports morphology

Comparative anatomy of humans and animals

Physiology of the central nervous system and higher nervous activity

Human and animal physiology

The flora and fauna of the world

Genetics

Population genetics

Methods of solving problems in genetic

Molecular Biology

Evolutionary biology

Module 5. Interdisciplinary and experimental activities

Brief description of the module content

The module “Interdisciplinary and experimental activities” is aimed at developing interdisciplinary competencies in students and involves studying disciplines at the intersection of biology, chemistry, physics, computer science and mathematics. The knowledge, abilities, skills and competencies obtained within the module will allow students to create an educational environment and use interdisciplinary connections as a means of strengthening the unity of training and education of students when studying various sections of biology and chemistry.

Module disciplines

Mathematics in natural history

Mathematic statistics in chemistry

Mathematical modeling of the experiment

Chemical ecology

Agrochemistry

Soil chemistry

Biology chemistry

Forms and methods of organizing STEM training

Analysis of natural objects

Methods of sampling and sample preparation, basics of biometrics

Pedagogical experiment and experimental data processing

Chemistry of the hydrosphere

Undergraduate practice

Productive (pedagogical) Practice

Final examination

Brief description of the module content

Writing and defending a thesis or preparing and passing a comprehensive exam.

Module disciplines

Graduate work

Final examination

4.Summary table on the scope of the educational program

«6B01509 - Chemistry and Biology»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
Module 1. Fundamentals of social and humanitarian knowledge										
Foreign language	GER/CC	1	5	150		45		35	70	Examination
Kazakh(Russian) language (1)	GER/CC	1	5	150		45		35	70	Examination
Physical Culture	GER/CC	1	2	60		60				Differentiated attestation
The module of socio-political knowledge (sociology, political science, cultural studies, psychology)	BS/CC	1	8	240	30	45		55	110	Examination
Foreign language	GER/CC	2	5	150		45		35	70	Examination
Kazakh(Russian) language (2)	GER/CC	2	5	150		45		35	70	Examination
Bases of economics, law and ecological knowledge	GER/US	2	5	150	15	30		35	70	Examination
Physical Culture	GER/CC	2	2	60		60				Differentiated attestation
History of Kazakhstan	GER/CC	3	5	150	30	15		35	70	Qualification examination
Physical Culture	GER/CC	3	2	60		60				Differentiated attestation
Information and communication technology	GER/CC	4	5	150	15	15	15	35	70	Examination
Physical Culture	GER/CC	4	2	60		60				Differentiated attestation
World of Abai	BS/US	4	3	90	15	15		20	40	Examination
Philosophy	GER/CC	6	5	150	15	30		35	70	Examination
Module 2. Psychological-pedagogical and methodological training of personnel										
Introduction to the profession of teacher of chemistry and biology	BS/US	1	3	90	15	15		20	40	Examination
Age psychology and physiology	BS/US	1	5	150	15	30		35	70	Examination
Pedagogy	BS/US	2	5	150	15	30		35	70	Examination
Educational practice	BS/US	2	2	60						Total mark on practice
Inclusive education	BS/US	3	3	90	15	15		20	40	Examination
Pedagogical practice	BS/US	4	1	30						Total mark on practice
Pedagogical practice (psychological and pedagogical)	BS/US	4	2	60						Total mark on practice
Methodology of chemistry training	BS/US	5	5	135	15		15	35	70	Examination
Methodology of biology training	BS/CCh	5	5	150	15	30		35	70	Examination
Scientific-methodical bases of teaching chemistry in small schools	BS/CCh	5	5	150	15	30		35	70	Examination
Modern approaches to education	BS/CCh	5	5	150	15	30		35	70	Examination

Technologies of the updated content of education and criteria assessment	BS/US	5	5	150	15	30		35	70	Examination
Electronic educational resources	BS/US	5	5	150	15	30		35	70	Examination
The tasks of high complexity in chemistry	BS/CCh	6	5	150	15	30		35	70	Examination
Interdisciplinary communication school chemistry course	BS/CCh	6	5	150	15		30	35	70	Examination
Methods of conducting a school chemical experiment	BS/CCh	6	5	150	15		30	35	70	Examination
Methods of solving tasks of physical chemistry	BS/CCh	6	5	150	15	30		35	70	Examination
Technique of the solution of tasks in chemistry	BS/CCh	6	5	150	15	30		35	70	Examination
Pedagogical practice	BS/US	6	5	150						Total mark on practice
Elective courses of Chemistry in core grades	BS/CCh	6	5	150	15		30	35	70	Examination
Methods of organization of extracurricular work on the subject	BS/CCh	7	3	90	15	15		20	40	Examination
The organization and forms of independent work of pupils in chemistry	BS/CCh	7	3	90	15	15		20	40	Examination
Modern technologies in chemistry teaching	BS/CCh	7	3	90	15	15		20	40	Examination
Module 3. Chemical Knowledge										
General and Inorganic Chemistry	BS/CCh	2	5	150	15		30	35	70	Examination
Chemistry of the metals and nonmetals	BS/CCh	2	5	150	15		30	35	70	Examination
Chemistry of heavy metals	BS/CCh	2	5	150	15		30	35	70	Examination
Methods for extraction and purification of the substances	BS/CCh	3	5	135	15		15	35	70	Examination
Chromatographic analysis	BS/CCh	3	5	135	15		15	35	70	Examination
Qualitative and quantitative analysis	BS/CCh	3	5	135	15		15	35	70	Examination
Organic chemistry	AS/CCh	4	5	135	15		15	35	70	Examination
Chemistry of Organoelement compounds	AS/CCh	4	5	135	15		15	35	70	Examination
Chemistry of natural compounds	AS/CCh	4	5	135	15		15	35	70	Examination
Theory solution	AS/CCh	5	5	135	15		15	35	70	Examination
Physical and colloidal chemistry	AS/CCh	5	5	135	15		15	35	70	Examination
Cinetical of chemistry	AS/CCh	5	5	135	15		15	35	70	Examination
Fuel Resources of Kazakhstan	AS/CCh	7	5	135	15		15	35	70	Examination
Chemical industry of Kazakhstan	AS/CCh	7	5	135	15		15	35	70	Examination
Chemical technology	AS/CCh	7	5	135	15		15	35	70	Examination
Module 4. Biological knowledge										
Anatomy and Morphology of Plants	BS/CCh	2	3	83	15		8	20	40	Examination
Taxonomy of higher plants	BS/CCh	2	3	83	15		8	20	40	Examination
Evolutionary adaptation of plants	BS/CCh	2	3	83	15		8	20	40	Examination
Plant Sistematic	BS/CCh	3	5	150	15		30	35	70	Examination
Modern aspects of cultivation of cells and tissues of the body	BS/CCh	3	5	150	15		30	35	70	Examination

Cytochemistry of the cell	BS/CCh	3	5	150	15		30	35	70	Examination
Vertebrate and Invertebrate Zoology	AS/CCh	3	5	150	15		30	35	70	Examination
Vertebrates of Kazakhstan	AS/CCh	3	5	150	15		30	35	70	Examination
Comparative anatomy of vertebrates	AS/CCh	3	5	150	15		30	35	70	Examination
Field training practice	BS/US	4	2	60						Total mark on practice
Plant Physiology	BS/US	4	5	150	15		30	35	70	Examination
Human anatomy	BS/CCh	5	5	150	15		30	35	70	Examination
Anatomy, the basics of sports morphology	BS/CCh	5	5	150	15		30	35	70	Examination
Comparative anatomy of humans and animals	BS/CCh	5	5	150	15		30	35	70	Examination
Physiology of the central nervous system and higher nervous activity	BS/CCh	6	5	135	15		15	35	70	Examination
Human and animal physiology	BS/CCh	6	5	135	15		15	35	70	Examination
The flora and fauna of the world	BS/CCh	6	5	135	15		15	35	70	Examination
Genetics	AS/CCh	7	6	180	15	45		40	80	Examination
Population genetics	AS/CCh	7	6	180	15	45		40	80	Examination
Methods of solving problems in genetic	AS/CCh	7	6	180	15	45		40	80	Examination
Molecular Biology	AS/US	7	3	90	15	15		20	40	Examination
Evolutionary biology	AS/US	7	5	150	15	30		35	70	Examination
Module 5. Interdisciplinary and experimental activities										
Mathematics in natural history	BS/CCh	3	5	150	15	30		35	70	Examination
Mathematic statistics in chemistry	BS/CCh	3	5	150	15	30		35	70	Examination
Mathematical modeling of the experiment	BS/CCh	3	5	150	15	30		35	70	Examination
Chemical ecology	AS/CCh	4	5	135	15		15	35	70	Examination
Agrochemistry	AS/CCh	4	5	135	15		15	35	70	Examination
Soil chemistry	AS/CCh	4	5	135	15		15	35	70	Examination
Biology chemistry	BS/US	6	5	150	15		30	35	70	Examination
Forms and methods of organizing STEM training	BS/US	7	5	150	15	30		35	70	Examination
Analysis of natural objects	AS/CCh	7	5	135	15		15	35	70	Examination
Methods of sampling and sample preparation, basics of biometrics	AS/CCh	7	5	135	15		15	35	70	Examination
Pedagogical experiment and experimental data processing	AS/US	7	5	150	15	30		35	70	Examination
Chemistry of the hydrosphere	AS/CCh	7	5	135	15		15	35	70	Examination
Undergraduate practice	AS/CCh	8	15	450						Total mark on practice
Productive (pedagogical) Practice	AS/CCh	8	15	450						Total mark on practice
Final examination										
Graduate work		8	8	240						

Final examination		8	8	240						

Non -Profit Limited Company «Shakarim University of Semey»

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

"6B01509 – Chemistry- Biology"
(code and name of OP)

for 2024-2028

Semey 2024

Content

1. Passport of the Development Plan of the EP "6B01509 – Chemistry and Biology"

1	Basis for development	Development program of the Non -Profit Limited Company «Shakarim University of Semey» for 2023-2029 school work plan
2	Implementation deadlines	2024 -2028 g.g.
3	Expected results of implementation	In connection with the improvement of the quality of education, the preparation of a competent, competitive, innovation -oriented specialist who adapts to changing conditions of the labor market, approaches to the design of educational programs are changing in the Kazakhstan higher education system. New conditions change not only the role of education in society, but its goals, objectives and content, which dictates the need for constant updating of programs, educational and methodological materials.

activities is also facilitated by the participation of students in scientific circles at the department, in seminars, round tables and conferences.

Course curricula, content of lectures, practical and laboratory classes are adjusted taking into account the renewal of the library collection, the requirements of internal and external regulatory documents and concepts of educational development. EP training sessions are conducted in 15 classrooms. Practical training of EP students is carried out through educational and industrial practices, which are the most important link in the system of professional training of future specialists. Internships are focused on deepening, systematizing, generalizing and concretizing theoretical knowledge acquired at the university, and improving professionally significant skills and abilities.

Students take an active part in creating an educational trajectory during the learning process by participating in the academic mobility program. The organization of external and internal academic mobility at the university is carried out on the basis of the "Regulations on academic mobility of Shakarim University in the Republic of Kazakhstan", taking into account the needs and individual characteristics of students. Academic support for students when choosing a partner university and forming an individual curriculum, which includes the opportunity to study the proposed disciplines, is provided by the student advisor and the preschool education coordinator .

The university has concluded an agreement on cooperation on the implementation of programs for external academic mobility of students with 30 universities in foreign countries, as well as internal academic mobility of students with 19 universities of the Republic of Kazakhstan.

General control over the employment process of university graduates is carried out by the head of the Career and Employment Department. Every year, the university appoints those responsible for employment at the faculty level and at the level of graduating departments. Every year the university holds a university-wide job fair with the participation of employers from different fields of activity. By OP " 6B015 09 – Chemistry- Biology " specialists are graduated annually, The employment rate is 100% .

Dual training in educational organizations is organized during the period of professional training for full-time students to gain practical experience taking into account the content of the modules of the educational program in accordance with the curriculum .

2.4 Information about teaching staff implementing the educational program

No.	Indicators	Unit .	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year	2027-2028 academic year
1	Share of teaching staff with an academic degree in EP	%	**57**	**62**	**67**	**68**
2	Including the share of teaching staff with an academic degree in the OOD cycle	%	**10**	**10**	**12**	**14**

2.5 Characteristics of the achievements of the EP

- ✓ The demand for specialists with higher pedagogical education in the region;
- ✓ The share of graduates who studied under government orders and are employed in their specialty is 100%
- ✓ Sufficient level of settling ; the share of full-time teaching staff with academic degrees and titles is 5 3 %.
- ✓ High lecturing skills and mentoring and the presence of basic education of teaching staff
- ✓ The use of innovative teaching methods by teachers in training sessions
- ✓ Availability of continuity at two levels: bachelor's - master's degree
- ✓ Formation of practical skills of students taking into account the real needs of employers
- ✓ Availability of educational laboratories equipped with laboratory equipment and instruments
- ✓ The information and library collection in the specialty is complete, all disciplines are provided with educational, educational, methodological and scientific literature
- ✓ Provision of hostel accommodation for non-resident students
- ✓ Active participation of teaching staff and students in cultural events

3. Main objectives of the EP development plan

Goals and objectives for the development of EP 6B015 09 – Chemistry- Biology in accordance with the mission of the university are:

- of carrying out the process of social and pedagogical training and education of a child at a high level ;

- filling the labor market with competitive teachers focused on professional growth, civic values, social responsibility and competencies in accordance with the requirements for this area of training.
- fulfillment of the social order of society for the development and formation of specialists in demand in the system of chemical and biological education;
- increasing the level of quality of education in accordance with the requirements of national and international standards based on the formation of motivation of students for professional improvement and self-realization;
- mastery of key, subject and professional competencies for subsequent successful professional activities;
- formation of students' readiness to organize and conduct research activities in the field of chemical and biological education.

4 Risk analysis of OP

No.	Name of risks	Corrective measures
1	Outdated training and laboratory facilities	Creation of a modern educational, research and laboratory base on the basis of public-private partnership, purchase of modern laboratory equipment.
2	Weak practical skills of students in using modern teaching methods in practice.	Practice introducing elements of dual training in educational organizations to gain practical experience, taking into account the content of the modules of the educational program .
3	Decline in the employment rate of graduates	Continue the development of the career guidance system for the younger generation, starting from school (both university graduates and students themselves, as well as teachers, specialists from the university employment center and employers can help with this); Carry out systematic monitoring of the functioning of the EP quality assurance system, including its design and management based on facts.
4	Insufficient development of external and internal academic mobility of students and teaching staff	Intensifying international scientific cooperation
5	The risk of reducing the degree of teaching staff in	To increase the level of teaching staff by enrolling young specialists in

	the EP	PhD programs .
6	EP development plans undergo public discussion with a small number of representatives of interested parties, based on whose proposals and amendments changes could be made to the planning and management of EP;	Expand the opportunities for developing practical skills of students, taking into account the real needs of employers;
7	Insufficient participation of teaching staff in competitions for the implementation of grant scientific projects financed by the Ministry of Education and Science of the Republic of Kazakhstan and other funds;	Increase the share of participation of teaching staff in competitions for the implementation of grant scientific projects financed by the Ministry of Education and Science of the Republic of Kazakhstan and other funds;

5. Action plan for the development of EP

No.	Criteria	Expected results	Unit change	2024 - 2025	2025 - 2026	2026 - 2027	2027- 2028
Direction 1. Educational and methodological support							
1.1	Updating the educational program based on professional standards , taking into account the recommendations of employers	Conducting an examination of OP 6B015 09 – Chemistry and Biology in order to increase practice orientation and develop professional competencies of graduates	fact .	**1**	**1**	**1**	**1**
1. 2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies and labor market demands	Improving the quality of the content of educational programs through the inclusion of elective courses aimed at developing key and professional competencies of graduates in accordance with the demands of the labor market.	fact .	**1**	**1**	**1**	**1**
1. 3	Introduction into the educational process of modern teaching technologies that contribute to the development of cognitive activity and communicative ability of students	Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity of students.	fact .	All disciplines by elective components	All disciplines by elective components	All disciplines by elective components	All disciplines by elective components

1.3.1	Introduction into the educational process of massive open online courses (MOOCs) according to the educational program 6B015 09 – Chemistry- Biology	Introduction of disciplines into the educational process Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity of students.	units –	-	-	-	-
1.4 –	Involving social partners and employers in the development and examination of the implementation of educational programs	Improving the quality of implemented educational programs taking into account market demands and employer recommendations	units –	**1**	**1**	**1**	**1**
1.5 –	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	units –	-	-	-	-
1.6 –	Conducting seminars and round tables on the use of innovative technologies in the educational process	Introduction of innovative technologies into the educational process	units –	**1**	**1**	**1**	**1**
1.7 –	Publication of educational, educational , methodological and scientific literature on implemented educational programs	Improving educational and methodological support in the disciplines of implemented educational programs	units –	**2**	**3**	**4**	**5**
1.8	Concluding agreements with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a base of foreign and domestic universities - partners for the development of academic exchange of students of all levels and teaching staff	units –	**1**	**1**	**1**	**1**

1.9	Inviting students from partner universities to study for a semester, short-term internships, practice, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	people	-	-	**1**	**1**
1.10	Participation of teaching staff and students in international academic exchange programs	Development of international cooperation with foreign universities implementing educational programs in the field of	people	-	-	**1**	**1**
1.11	Development of outgoing academic mobility of teaching staff and students in the direction 6B015 09 – Chemistry and Biology	Improving the educational program based on the experience of implementing similar programs in leading foreign universities	people	**5**	**2**	**2**	-
Direction 2. Teaching staff							
2.1	Increasing the professional level and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years	The share of teaching staff who have undergone advanced training at the republican and international level is at least 20%	people	**3**	**1**	**1**	**1**
2.2	Completion of advanced training, retraining, internship of teaching staff at the international level	Walkthrough at least 2 teachers advanced training, retraining, internship programs for teaching staff at the international level	people	-	-	**1**	**1**
2.3	Web databases of Science and Scopus	Web databases of Science and Scopus – at least 30% of the total teaching staff	%	**30**	**30**	**30**	**30**

2.4	Involving specialists from the practical field of activity in teaching and scientific activities	Participation in the implementation of educational programs of practitioners (at least 20% of specialists)	%	**20**	**20**	**20**	**20**
Direction 3. Internationalization of educational programs							
3.1	Concluding agreements on international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships for students	units –	**5**	**6**	**6**	**6**
3.2	Attracting foreign students to study under the educational program 6B015 09 – Chemistry and Biology	Increase in the number of foreign students	people	**-**	**1**	**1**	**-**
3.3	Organization of joint scientific and practical events with international partners	Increasing the efficiency of scientific and scientific-methodological activities of teaching staff, exchange of experience with foreign partners	units –	**1**	**2**	**2**	**-**
3.4	Inviting foreign specialists to give lectures and provide consultations on master's projects and dissertations	Improving the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs	units –	**1**	**1**	**1**	**1**

3.5	Expanding cooperation with leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	people	-	-	-	-
Direction 4. Logistics and digitalization							
4.1	Stage-by-stage equipment of classrooms with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	Equipping classrooms assigned to the department with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	units _	**1**	**2**	**2**	**1**
4.2	Carrying out automation of the educational process (testing, session management, student movement, dean's office, department, teaching load, schedule, library, syllabuses)	Information management based on automation of the educational process (testing, session management, student movement, dean's office, department, teaching load, schedule, library, syllabuses)	fact .	**All EISO**	**All EISO**	**All EISO**	**All EISO**
4.3	Replenishment of the full-text database of scientific research results of teaching staff and students, teaching staff (articles, monographs, etc.)	Increasing the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs, etc.)	units _	**2**	**2**	**2**	**2**

4.4	Expansion of the fund of scientific and educational literature, including on electronic media for ongoing educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	%	**100**	**100**	**100**	**100**
4.5	Monitoring the content and improvement of the faculty website	Formation of the faculty website on various aspects of the implementation of educational programs.	%	**100**	**100**	**100**	**100**

Head of the department _____ **Rakhimzhanova A.M., PhD**

REVIEWED
at a meeting of the Quality Assurance Commission
Chairman of the commission _____ Zheldybaeva B.S.
Protocol No. 6 dated 06.06. 2024

AGREED
Dean of the school _____ Mukaev Zh.T.
"06" 06 2024