



1. CHARACTERISTIC OF THE EDUCATIONAL PROGRAM

The purpose of the educational program: "8D05301-Chemistry"

1.1 GENERAL INFORMATION

Type of educational program	current
Name of the educational program	"8D05301-Chemistry"
Field of education	8D05 Natural sciences, mathematics and statistics
Training direction	8D053 Physical and Chemical Sciences
The group of the educational program	D089 Chemistry
License to engage in educational activities	The Educational program is implemented on the basis of the Appendix to the License №KZ75LAA00018542 dated August 04, 2020 in the direction of training 8D053 Physical and chemical Sciences (8D05301-Chemistry), issued by the Committee for control in the field of education and science of Ministry of Education and Science of the Republic of Kazakhstan.
Number and Date of Registration/ Update in the Register of EP	Number of Registration – 8D05300017 Date of registration in the Registry – 16.08.2019 Date of EP passport updating OII – 03.08.2023
Specialized disciplines for admission to the EP	Physical Chemistry Inorganic chemistry Organic Chemistry Analytical chemistry
Educational level by NQF	level 8, doctorate
Awarded degree	PhD in the educational program "8D05301-Chemistry"
Accreditation	1) Institutional accreditation: Independent Agency for accreditation and rating, certificate no. 12018901, date of issue: 21.12.2018, validity of accreditation: 20.12.2023 (5 years) 2) Specialized accreditation: Independent Agency for accreditation and rating, certificate №12018901, date of issue: 21.12.2019, validity of accreditation: 20.12.2023 (5 years)
Rating of the educational program	1) NAAR – 4th place – 2016, 2017, 2018, 2019.
The total amount of academic credits	180
Study duration	3 years

1.2 VISION, MISSION, PROGRAM GOAL, VALUES, UNIVERSITY GRADUATE ATTRIBUTES

Vision:

The University as a unique and prestigious scientific and educational center, contributing to the successful implementation of initiatives in education and science.



Mission:

Preparation of highly qualified pedagogical personnel who contributes professionally to the development of human capital of the country.

Program goal:

Preparation of doctors of philosophy (PhD) with deep knowledge of the theory, methodology and practice in the field of chemistry, able to conduct fundamental and applied research, teaching and management activities.

Values:

Integrity, dedication to one's work, caring for others

University graduate attributes:

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning
- Diverse, inclusive and for equality of opportunity in society

1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

The Relevance of the EP.

One of the priority directions of development of the Republic of Kazakhstan is the development of competitive chemical industries aimed at the production of high-tech, experimental and innovative products. In the production structure of the chemical industry of Kazakhstan 64% is basic chemistry, which occupies about 21% of inorganic acids, alkalis and salts, explosives, and varnishes and paints, agro-chemicals (fertilizers and pesticides), oil and gas represented by one large enterprise and is 10% of the total production of the chemical industry. Consumer chemicals, represented by enterprises that produce detergents and cleaning products, make up 5%.

According to the operative data of the COP of the MNE RK for the period January - December 2019, an increase IPV by 0.9% over the same period, 2018, in value terms the volume of production increased by 16%. For the period January-December 2019, the largest growth in production volumes in physical terms is shown by: additives for cements by 66.8%, phosphoric fertilizers by 36.9%, caustic soda by 27.5%, detergents by 21.3%, nitrogen fertilizers by 4%, paints and varnishes based on polymers by 2%. The decrease in production volumes in physical terms is shown by: carbon dioxide by 5%, styrene polymers in primary forms by 1%, sulfuric acid by 1%.

Specialists in this industry can work in many industries and industries, so the demand in the labor market is very high. Thus, we can conclude that it is easy to find a job as a chemist, since this profession is in demand.

<https://qazindustry.gov.kz/ru/analytics>

Market Demand.

The sphere of science is an important part of the national heritage, a fundamental resource for the country's economic and social transformation. Scientific potential largely determines the country's place in the world community, prospects for competition in the foreign market, and opportunities for solving its internal problems. The strategy of innovative and industrial development of the Republic of Kazakhstan planned to increase the amount of science funding to 1.0% of GDP by 2020. However, due to the global economic crisis, the share of domestic R & d expenditures in GDP in 2018 was 0.12%. 22,378 people were involved in research and development, including 17,454 specialist researchers.



In General, over the past five years, the process of forming the human potential of science shows a negative dynamics. Because of these indicators, it follows that it is necessary to train personnel in the field of training 6b053-Physical and chemical Sciences.

A comparative analysis of the staff composition in the fields of science shows that in General, compared with the previous year, the number of researchers in the field of natural and social Sciences increased by 298 and 451 people.

According to the results, 22.3 % of respondents are completely satisfied, and more than half (50.2 %) say that they are rather satisfied. However, more than a quarter of respondents gave a negative assessment, of which 20.1 % are rather dissatisfied and 7.5 % are absolutely dissatisfied with the development of the educational system.

Of the employees involved in the field of science in 2018, the share of specialists of pre-retirement and retirement age over 55 years accounts for almost 30 % of the total contingent. Young scientists made up about 35% of the population. The share of scientists in the age group from 35 to 54 years in the last year accounted for 40 % of the total number. At the same time, the problem of attracting and retaining talented young people and highly qualified specialists in science remains. The existing scientific staff has insufficient research skills, a low level of English language proficiency, and weak skills in the field of technological development and innovation.

<http://sc.edu.gov.kz/upload/iblock/4bf/4bff87705a74c0984f01cc2ee37fcb4c.pdf>

1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	
Double-degree program	
Additional education (Minor)	

Coincidence with similar EP of leading universities in the near and far abroad

Kazan Federal University - 65 %

Saint Petersburg state University - 50 %

1.5. GRADUATE CAREER OPPORTUNITIES

- Higher educational institutions;
- Government bodies in the field of education, chemical industry;
- Institutions of control and analytical service, centers of standardization and certification;
- Bodies of natural resources and environmental protection.

1.6. AREAS OF PROFESSIONAL COMPETENCE

Doctors of Education in the educational program "8D05301 Chemistry" can perform the following types of professional activities:

- educational and pedagogical: working as teachers of chemistry in higher educational institutions of the state and non-state sector;
- Research: working as a specialist in a scientific organization, junior, senior, leading researcher, and head of a research group.
- organizational and managerial, working as heads of departments and various services in scientific organizations, research institutes, administrative structures of the chemical, pharmaceutical, metallurgical industries, as well as environmental services;



- production and technological: working in the indicated structures; research and experimental research: working as specialists and researchers in laboratories of chemical, environmental, metallurgical, pharmaceutical, petrochemical, gas and coal profiles
- higher educational institutions;
- government bodies in the field of education, chemical industry;
- institutions of control and analytical service, centers of standardization and certification;
- Bodies of natural resources and environmental protection.

1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:

LO1 - Able to critically analyze and evaluate modern scientific achievements, generate new ideas in solving research and practical problems, including in interdisciplinary areas.

LO2 - Applies the basic principles, rules, norms of preparation, writing, editing academic writing for a qualified public presentation of scientific results in modern forms.

LO3 - Conducts scientific research using modern research, educational and information technologies based on theoretical analysis and empirical research, systematizing the logic and methods of scientific research.

LO4 - Develops new technologies for the production of chemicals with the determination of their purity, structure, properties, using existing technologies.

LO5 - Processes experimental data using linear and non-linear methods of analysis, including with the involvement of specialized digital resources.

LO6 - Solves the problems of production analysis associated with the creation and processing of materials using the modeling of objects and processes of chemical technology.

LO7 - Prepares scientific and technical documentation and implementation of the results of scientific research, developments in the form of materials for publications in journals with an impact factor.

LO8 - Possesses the skills of public speech and written reasoned presentation of one's own point of view and technologies of scientific communication in different languages.

LO 9 - Able to communicate ideas and information effectively in at least two languages, work in a team, demonstrate leadership qualities, create an inclusive environment where each participant feels accepted and respected, and contribute to the development of collective potential.

LO 10- Possess high-level critical and creative thinking skills, capable of self-regulation and reflection to solve professional problems

LO 11- Demonstrate knowledge of and adherence to ethical and legal standards in research and the use of digital technologies. Apply security measures when working with digital information and data protection, promote the active, safe and ethical use of digital resources.

Matrix for correlating EP learning outcomes with graduate attributes

	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO9	LO10	LO11
GA1	+			+		+				+	
GA 2									+	+	+
GA 3		+	+	+				+			+
GA 4			+			+		+		+	
GA 5					+		+		+		
GA 6	+	+			+	+	+		+		+



1.8. REFERENCES

The educational program is developed based on the following legal acts:

1) Professional standard «Teacher» approved by the order of the Chairman of the Board of the National Chamber of entrepreneurs of the Republic of Kazakhstan «Atameken» No. 133 dated June 8, 2017.

2) SQF of education approved by the Protocol No. 2 of the meeting of the sectoral trilateral commission on social partnership and regulation of social and labour relations under Ministry of Education and Science of the Republic of Kazakhstan dated November 23, 2016.

2. CONTENT OF THE EDUCATIONAL PROGRAM

№	Code and name of modules	Total credits by module	№	Name of subject and code	Credits by subjects	Cycle/component
1	ORW – 1 Organization of research work	9	1	ORW 701 Academic writing	4	UC
			2	ORW 702 Methods of scientific research	5	UC
2	SPM-2 Scientific and professional module	16	1	SPM 701 Research methods and new aspects of physical chemistry	6	UC
			2	SPM 702/1 Commercialization of research and development	5	OC
			3	SPM 702/2 Modern inorganic materials and technologies		
			4	SPM 703/1 Processing and technology of hydrocarbon raw materials	5	OC
			5	SPM 703/2 Morphology of the structure and properties of carbon-containing nanomaterials		OC
5	PT – 2 Professional training	10	1	PT 801 Pedagogical practice	10	UC
		10	2	PT7(8)02 Research practice	10	UC
		123	3	PT7(8,9) 031 Doctoral student research work, including internship and doctoral dissertation DSRW	112	DSRW
			4	Methods of scientific research	2	
			5	Intensive courses	9	
6	FC Final	12	1	FE 901 Writing and defense a doctoral dissertation	12	FC



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	certification					
	TOTAL:	180			180	



2.1. DESCRIPTION MODULES AND DISCIPLINES

ORW – 1 Organization of research work

Module description: The content of the module covers in detail the issues necessary to understand the essence of research work and methods for its implementation, reveals the basic concepts and categories of scientific research, describes the methodological principles of scientific research. A great place in the study of the module is occupied by the basics of modern information and bibliographic culture, methods, methods and means of obtaining, storing, processing information. The study of the disciplines of the module is designed to familiarize doctoral students with the organization of scientific knowledge and scientific research, to prepare them for conducting their own research and writing dissertations. This module involves the development of methods and technologies of research work using modern digital resources. The pedagogical practice of the module is aimed at involving a doctoral candidate in the teaching or teaching and methodological activities of the department to which he is attached, which allows to strengthen practical training in these areas and acquire the necessary practical skills for the competent organization and implementation of teaching and (or) educational and methodological work.

№	Name of subject and code	Cycle/component	Credits	Subject description	Teaching methods	LO by EP	Assessment methods
1	ORW 701 Academic writing	UC	4	The discipline considers principles and techniques of creating a scientific text, rules creating scientific texts of various genres (scientific, scientific-educational, etc.), creating and editing a scientific text for publication, and features of the academic tradition in a particular field of scientific activity. The discipline forms the skills of structured presentation of their own ideas, the ability to create scientific and scientific-informational texts of various types, taking into account the specifics of academic discourse.	Empirical method, problem-based search method	LO2, LO7, LO8, LO9, LO10	Written
2	ORW 702 Methods of scientific research	UC	5	The discipline considers with the principles and techniques of creating a scientific text, rules for building scientific texts of various genres (scientific, scientific-educational, etc.), creating and editing a scientific text for publication, and features of the academic tradition in a particular field of scientific activity. The discipline forms the skills of structured presentation of their own ideas, the ability to create scientific and scientific-informational texts of various types, taking into account the specifics of academic discourse.	Empirical method, problem-based search method	LO1, LO3, LO7, LO8, LO9, LO10, LO11	Written

SPM – 2 Scientific and professional module



Module description: The module considers modern aspects and methods of research in inorganic, physical, organic chemistry, processing and technology for obtaining new chemical materials and substances.

№	Name of subject and code	Cycle/component	Credits	Subject discription	Teaching methods	LO by EP	Assessment methods
1	SPM 701 Research methods and new aspects of physical chemistry	UC	6	Modern problems of chemical thermodynamics. Theoretical and applied problems of statistical thermodynamics. Modern problems of chemical kinetics. Approximate methods for calculating the kinetic characteristics of complex reactions. Patterns of enzymatic reactions. Kinetics of chain reactions. Kinetics of chemical reactions in solutions. Patterns of the kinetics of heterogeneous chemical reactions. Modern problems of the kinetics of electrode processes. Theoretical and applied aspects of electrochemistry.	Project method	LO3, LO4, LO5, LO8, LO9, LO10, LO11	Written
2	SPM 702/1 Commercialization of research and development	OC	5	Principles and forms of organization of scientific and technical activities, its results, content of concepts of technology and transfer of technologies. The content of basic methods of assessing the commercial potential of pedagogical technologies, its usefulness and potential cost. Stages of commercialization of research results, model of commercialization of scientific and educational research results. Protecting intellectual property objects and the rights to use them in the process of commercializing the results of scientific and educational research. The theoretical and methodological aspects of the business plan to commercialize research and pedagogical research. Transfer of technology. Interactions with government agencies, companies, scientific organizations.	Empirical method, problem-based search method	LO3, LO4, LO5, LO7, LO19, LO10, LO11	Written
	SPM 702/2 Modern inorganic materials and technologies	OC	5	To systematize the basic scientific and technical information about the objects and technologies for the production of inorganic substances and materials; Critically assess the latest achievements in the theory	Empirical method, problem-based search method	LO3, LO4, LO5, LO7,	Written



				and practice of chemical technology; Develops schemes of modern technological processes for the production, processing of inorganic materials and products from them; Solve scientific and technical problems of chemical technology of inorganic substances in priority areas of industry in Kazakhstan in new and unfamiliar conditions using modern methods of research, analysis, diagnostics and modeling; Carries out the analysis, planning and organization of the educational process in chemical and chemical-technological disciplines in higher education organizations using modern educational technologies and teaching methods; Improve methods of control of inorganic technology processes and methods of analysis of raw materials and finished products; Work with modern scientific and technical literature, databases and software in the field of chemical technology;		LO8, LO9, LO10	
3	SPM 703/1 Processing and technology of hydrocarbon raw materials	OC	5	Main directions of oil and gas processing. Classification of oil and petroleum products. Basic methods of oil and gas production. Preparation of gases for processing: desulfurization and drying of gases. Classification of primary processes of processing of hydrocarbon raw materials. The main types of devices the primary distillation of crude oil. Types of electric dehydrators and their purpose. Rectification columns and types of plates used. Furnaces of primary oil distillation units and their types. Thermal processes, classification and their main purpose. Preparation of material and heat balances of the coking plant. The calculation of the reactor of the Hydrotreating unit. Development of a flow diagram of oil refining for fuel and complex options.	Empirical method, problem-based search method	LO1, LO4, LO6, LO7, LO9, LO10	Written



	SPM 703/2 <i>Morphology of the structure and properties of carbon-containing nanomaterials</i>			Carbon nanotubes and nanofibers. Structure of fullerene-like nanostructures. Carbon nanotubes. Properties of carbon nanomaterials (CNM). Methods for obtaining CNM. Synthesis of CNM from carbon-containing gases. Mechanism of growth of carbon nanostructures. Apparatus for production of carbon nanomaterials. Technology of production of catalysts for the synthesis of carbon nano-material. Capacitive reactor for synthesis of CNM with a fixed bed of the catalyst.	Empirical method, problem-based search method	LO3, LO4, LO5, LO7, LO9, LO10	Written
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PT – 3 Professional training

Module description: The module examines the performance of a doctoral student's research work on their subject using modern methods of scientific research, based on modern theoretical, methodological and technological achievements of science and practice. The module considers the passage of a scientific internship in order to get acquainted with innovative technologies and new types of production, conduct scientific and experimental research in scientific organizations and / or organizations of relevant industries or fields of activity in the country or abroad.

№	Name of subject and code	Cycle/component	Credits	Subject discription	Teaching methods	LO by EP	Assessment methods
1	PT 801 Pedagogical practice	UC	10	Development of creative potential, development of scientific and methodological knowledge in pedagogical practice and adaptation to the requirements of the international labor market; to consider the main directions and development of doctoral students in the modern education system;	Educational process	-	Report
2	PT7(8)02 Research practice	UC	10	Development of creative potential, development of scientific and methodological knowledge and adaptation to the requirements of the international labor market; to consider the main directions and development of doctoral students in the modern education system;	Practical work	-	Report
	PT7(8,9) 031 Doctoral student research work,	DSRW	3	5	Research work is carried out aimed at developing the ability of doctoral students to make their own theoretical	-	Report



3	including internship and doctoral dissertation DSRW				and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific community.			
	Intensive courses		2		The discipline "Methods of scientific research", carried out in order to provide the student with the information necessary for effective writing of scientific research work, carries out a comprehensive analysis of various scientific texts, starting with the concept of research. The analysis of research works is carried out, focusing on the writing of their methodology section. The doctoral student is given the opportunity to develop a research plan that he considers appropriate, combining the experience and knowledge gained up to this stage in his field of research. In addition, detailed information is provided on the set of studies that are included in the design of the research work. This contributes to the systematic recording of the doctoral student's research work and informing about other methods of scientific research. It will also improve knowledge about the information necessary for the course of the research process, such as the use of quantitative, qualitative, mixed research methods, ways of collecting data, research ethics, data analysis.			
4	PT7(8,9) 031 Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	20	25	Research work is carried out aimed at developing the ability of doctoral students to make their own theoretical and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific	Practical work	-	Report



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	Intensive courses		5	community. is aimed at developing the skills of writing various scientific texts (scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure and styles of scientific articles in highly rated journals of international level.				
5	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	18	20	Research work is carried out aimed at developing the ability of doctoral students to make their own theoretical and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific community.	Practical work	-	Report
	Intensive courses		2		is aimed at developing the skills of writing various scientific texts (scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure and			



					styles of scientific articles in highly rated journals of international level.			
6	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	23	25	Research work is carried out aimed at developing the ability of doctoral students to make their own theoretical and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific community.	Practical work	-	Report
	Intensive courses		2		is aimed at developing the skills of writing various scientific texts (scientific article, report, reviews, literary review, article based on empirical data, etc.), comprehensive mastery of their features and structures. The course covers all the problems that a doctoral student faces in the process of writing an article, starting with the choice of a topic and ending with its publication. In the course of studying the discipline, doctoral students improve such skills as critical thinking, systematization of writing, scientific discourse, critical reading, analysis, evaluation, etc. They get acquainted with the structure and styles of scientific articles in highly rated journals of international level.			
7	Doctoral student research work, including internship and doctoral dissertation DSRW	DSRW	30		Research work is carried out aimed at developing the ability of doctoral students to make their own theoretical and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific community.	Practical work	-	Report
8	Doctoral student	DSRW	18		Research work is carried out aimed at developing the	Practical work	-	Report



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	research work, including internship and doctoral dissertation DSRW			ability of doctoral students to make their own theoretical and practical conclusions. The formation of one's own opinion forms the skill of an objective assessment of scientific information, the ability to integrate interdisciplinary knowledge into a free scientific search. Examines the ways of applying scientific knowledge in educational activities, discusses them in the scientific community.			
9	Final Certification	FE	12	Writing and defense a doctoral dissertation	Completion of the thesis, registration	-	Defense



3. RESOURCE SUPPLY OF THE EDUCATIONAL PROGRAM

3.1. LIBRARY FUND

One of the important indicators of the quality of training in the educational program is the provision of students with educational, methodological, scientific literature, reference and periodicals.

The library Fund for the EP cipher and name as of may 1, 2023 is 3624 copies, including in the state language - 2718copies, copies in Russian and 820 copies in foreign languages.

The University library provides students and faculty with access to databases: IPR books, Polpred, Alembook, Web of Science, Elsevier (Scopus).

Access to the Republican interuniversity electronic library (RIEL), which combines electronic educational and scientific resources of Universities of the Republic of Kazakhstan, is provided.

Students of the educational program have access to the following scientific journals:

Proceedings of the NAS RK, Bulletin of the NAS RK, Chemical Journal of Kazakhstan, Bulletin of KazNU named after al-Farabi (chemical series, biological series), Vestnik KazNatsZhenPu, Chemistry mektepte, Biology in the Kazakhstan school, Chemistry in the school (Russia), Biology in the school (Russia), Chemistry anytamaly, Biologist anytamaly, Search, Higher school of Kazakhstan.

Since 2010, the library provides an opportunity for students of Kazakh National Women's Teacher Training University to get acquainted with the content of master's theses in traditional format (more than 150 titles), half of it have been converted into PDF format.

Students can also use the "Kazakh National Women's Teacher Training University's Electronic library" service, which provides access to the electronic library from a computer anywhere in the world in 24/7 format (website address: lib.kazmkpu.kz). There are about 10,000 full-text sources, more than 1,000 licensed books, 6676 scanned books by the library staff, and about 300 books that belong to the rare collection.

3.2. TEACHERS STAFFING

The educational program is implemented by the Chairs Chemistry. Quantitative and qualitative indicators of faculty serving the educational program (disciplines of basic and major cycles):

Total number of faculty - 20 people, including: 18

Doctor of science – 3

Candidate of Sciences – 8

Ph.D – 3

The ratio of degree awarded faculty members of the EP– 68,4 %.

The qualification characteristics of the teaching staff of the educational program are reflected in the **Personnel Directory**.

3.3. MATERIAL AND TECHNICAL BASE

Laboratory research, classes, experiments, analyses, and experiments for scientific and industrial purposes are conducted in a specially designated room-the laboratory. All laboratory classrooms are equipped and equipped with special chemical modern equipment (photocolorimeter, thermostat, ionometer, potentiometer, electronic, analytical scales). All laboratory classrooms of the Department of chemistry meet the requirements of curricula and programs to conduct laboratory-practical and research work.

Name of the laboratory: No. 333 "Complex chemical and biological research center" of equipment in the laboratory: Distiller "GFL-2004", IR spectrometer "Bruker ALFA", UK



spectrometer "SI Analytics UviLine 9400-9100", Atomic adsorption spectrometer" Perkin Elner Pin AAcle 900", x – ray Diffractometer" RiGaku Mini Flex 300/600", Analytical scales" Ohaus Pioneer", pH meters.

Name of the laboratory: No. 322

Chemical equipment in the laboratory: 1 computer, reagents and devices for laboratory studies, fume hood, electronic scales, microscope, adsorption unit. (computer performance). QALFC.

Name of the laboratory: No. 326

Chemical equipment in the laboratory: 1 computer, reagents and chemical devices for laboratory classes, fume hood, muffle furnace, laboratory electric furnace, conductometer.

Name of the laboratory: No. 328

Chemical equipment in the laboratory: 1 computer, laboratory reagents and devices, fume hood, water thermostat, rotating evaporator, technical scales, water heater flask, reactor glass for organic synthesis, drying Cabinet, photocolimetr.

Name of the laboratory: No. 332

Chemical equipment in the laboratory: 1 computer, for laboratory studies reagents and chemical devices fume hood, electronic scales, drying Cabinet, melting point. detector, Refractometer, KFC 2 photocolimeter, pH meter.

Name of audience: No. 331

Chemical equipment in the laboratory: 1 interactive whiteboard (acer), 1 computer, stand.

Practice bases:

№	Name of company	№ and contract date
1	Scientific research Institute of Gorenje problems, Almaty. The contract	07.08.2018г.
2	Institute of Chemical Sciences named after A.B. Bekturov, Almaty. Memorandum,	27.01.2022 г.
3	Institute of Metallurgy and Enrichment	19.07.2022г.
4	Aktobe Regional University named after. K. Zhubanova	27.01.2022г.



4. LONG-TERM PLAN FOR THE DEVELOPMENT OF THE EDUCATIONAL PROGRAM

	Content of the event	Implementation period	Responsible
Educational and Methodological Direction			
1	Development of syllables, educational and methodological complexes of disciplines	August 2023	Teaching staff of the Department of Chemistry
2	Preparation of textbooks and teaching aids	during a year	Teaching staff of the Department of Chemistry
3	Conducting methodological seminars	during a year	Teaching staff of the Department of Chemistry
4	Preparation of basic educational programs accredited in academic year: preparation of explanatory notes and other structural components of the EP.	during a year	EP developers
Research Direction			
1	Boosting research grant applications	during a year	Teaching staff of the Department of Chemistry
2	Activation of the activities of the teachers of the department in the preparation of publications indexed in SCOPUS, Web of Science	during a year	Teaching staff of the Department of Chemistry
3	Organization of a scientific and professional seminar for teachers, bachelor students.	during a year	The head of the center Dzhienbaev B.Zh.
4	Form an information database of scientific achievements and scientific potential of the teachers of the department	during a year	Myrzakhmetova N.O. Teaching staff of the Department of Chemistry
Training			
1	Seminar on the topic: "Methods for the isolation of biologically active substances of their Compositae plants"	during a year	Azimbaeva G.E. Candidate of Chemical Sciences, Associate Professor
2	Conducting seminars and refresher courses	during a year	Teaching staff of the Department of Chemistry
3	Organization and passing of refresher courses for all teaching staff	during a year	Teaching staff of the Department of Chemistry
Career Guidance			
1	Participation in Olympiads held at universities and schools	during a year	Azimbaeva G.E. Candidate of Chemical Sciences, Associate Professor
2	Participation in international and republican conferences, symposia	during a year	Teaching staff of the Department of Chemistry



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3	Carrying out vocational guidance work	during a year	Teaching staff of the Department of Chemistry
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