

6B01507 Chemistry

The purpose of the educational program: Training of a chemistry teacher with high social and civic responsibility, able to carry out professional activities in the field of pedagogical education

1.1 GENERAL INFORMATION

Type of educational program	current
Name of the educational program	6B01507 Chemistry
Field of education	6B01 Pedagogical sciences
Training direction	6B015 Teacher Training on Natural Sciences
The group of the educational program	B012 Training of teachers chemistry
License to engage in educational activities	The educational program is implemented on the basis of the appendix to the License No. KZ75LAA00018542 dated August 04, 2020 in the direction of personnel training 6B015 Teacher Training on Natural Sciences, issued by the RSU "Committee for Quality Assurance in the field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan".
Number and Date of Registration/ Update in the Register of EP	
UNT Subjects	1.Chemistry 2.Biology
Educational level by NQF	Bachelor's Degree, level 6
Awarded degree	Bachelor of Education in the Educational Program 6B01507 Chemistry
Accreditation	Independent Agency for Accreditation and Rating (IAAR) No. AB2429 certificates, date of issue: 05.24.2019, validity period of accreditation: 05.23.2026
Rating of the educational program	<i>Atameken:</i> 2021 y. – 8th place from 18 OP; 2022 y. – 1th place from 21 OP <i>IAAR:</i> 2021 y. – 4th place 2022 y. – 1th place
The total amount of academic credits	240
Study duration	4 years

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

Vision:

An intellectual platform that develops educators who are open to new ideas and able to lead in a rapidly changing world.

Mission:

Developing teacher leaders, who can create, develop, and disseminate advanced knowledge and values in education for the benefit our country and the world.

Program goal:

Our University aims to become a hub for innovative teaching, learning, research as well as the development of rural education in Central Asia.

Values:

Integrity, commitment, care.

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

Justification:

The Relevance of the EP. One of the priority directions of the development of the Republic of Kazakhstan is the development of competitive industries in the chemical industry aimed at producing high-tech, experimental and innovative products. In this regard, the training of chemistry teachers who can develop a young generation's interest in chemical science and lay the foundation for research skills is very relevant. In improving the quality of secondary education, an important component is played by

Market Demand.

In connection with the overflow of labor from other sectors, the number of new workers demanded in the labor market due to changes in the demand structure is estimated at 5.6 thousand people, of which 567 people will be most in demand in secondary school teachers, or 10.1% of the total. (West-Kazakhstan region)

In connection with the overflow of labor from other sectors, the number of new workers demanded in the labor market due to changes in the demand structure is estimated at 25.5 thousand people, of which 12.7 thousand teachers in high schools will be most in demand. . person, or 50.1% of the total. The number of employees hired or employed by 2022 will reach 138.2 thousand, the most hired or employed will be the teacher category in high school - 22.7 thousand, or 16.4%. In connection with the overflow of labor from other sectors, the number of new workers demanded in the labor market due to changes in the demand structure is estimated at 117.3 thousand people, of which 22.7 thousand teachers in high schools will be most in demand people, or 19.3% of the total number. (South Kazakhstan region).

The number of employees required by 2022 is 582,914 due to changes in the structure of demand for teacher labor in secondary schools 45,707 (7.8%) https://www.enbek.kz/docs/sites/default/files/srednesrochnyy_prognoz_2017-2022.pdf

The number of new workers claimed 328,208 by 2022 due to changes in the structure of labor demand) teachers in secondary schools 45,489 (13.9%)

As a result of modeling demographic processes and assessing employment by 2022: the most demanded profession (position, occupation) of a teacher in high school.

1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	Niide Omer Halisdemir University (Republic of Turkey)
Additional education (Minor)	<p style="text-align: center;">Additional educational program Minor</p> <p>"Chemist-perfumer" Additional educational program Minor (Minor) - a set of disciplines and (or) modules and other types of educational work, determined by the student to study with the aim of forming additional competencies (Rules for the organization of the educational process on credit training technology Order of the Ministry of Education and Science of the Republic of Kazakhstan dated 12.10.2018, No. 563) disciplines of additional academic studies are studied by students in the framework of VC and KV and their volume is included in the total amount of loans required to assign an appropriate degree or qualification for the main academic program (Rules for the organization of the educational process on credit training technology Order of the Ministry of Education and Science of the Republic of Kazakhstan dated October 12, 2018 No. 563)</p> <p>The future bachelor may receive additional training in sanitary-hygienic laboratory research by choosing the "Chemist-perfumer" to study Minor</p> <p>Distinctive features of Minor:</p> <ul style="list-style-type: none"> • studied in the fourth year of undergraduate studies; • consists of three disciplines studied sequentially; • labor input of 15 credits (labor input of each discipline - 5 credits); • labor input is included in the main part of the educational program (credits for Minor disciplines are included in 240 credits of the main program); <p>A comprehensive training course for specialists in the field of cosmetics production, students gain theoretical and practical knowledge in the field of biological chemistry, cosmetology, study the composition and interaction of essential oils, as well as get habits in other areas related to the production of perfumes; teach chemistry, microbiology, product production technologies, equipment; study essential oil production technologies, create perfume compositions and phyto-preparations. Students take a full course in the production of cosmetics and perfumes. They are retrained in leading perfume products Training gives you the opportunity to work in your specialty.</p> <p>After graduation, graduates may be interested in the following areas: in the field of technologies of</p>

	chemical-pharmaceutical and cosmetic products, cosmetology, perfumer, laboratory assistant, chemical engineer, marketer of perfume products. Graduates of the department will work at enterprises of a profile orientation, are acquired by full-time perfumers and take part in the development of decorative cosmetics, creams, scented items, shampoos.
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Coincidence with similar EP of leading universities in the near and far abroad

National Research Tomsk State University - 47%

Stanford University - 26%

The University of California, Berkeley - 40%

1.5. GRADUATE CAREER OPPORTUNITIES

- educational (pedagogical): working as a chemistry teacher in various educational institutions (schools, grammar schools, lyceums, colleges, etc.);
- research: the implementation of scientific research in relevant disciplines in various organizations;
- the use in research and practice of the results of undergraduate practice and the defense of the thesis (project).

1.6. AREAS OF PROFESSIONAL COMPETENCE

Area of professional competence 1

Possesses fundamental chemical knowledge, knows how to apply them in his professional activity

Area of professional competence 2

They know innovative pedagogical teaching technologies with the selection of appropriate forms, methods of organizing educational and research activities

Area of professional competence 3

They are able and have the skills to carry out experimental work in a chemical laboratory, conduct a demonstration experiment (real and virtual), observe and measure chemical phenomena and properties, register, process and explain the experimental results obtained

1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:

LO1 - Applies a variety of communication formats taking into account socio-cultural diversity, adheres to the principles of equality and accessibility in education, to create a prosperous and inclusive environment, has leadership qualities and is able to apply them to develop collective potential

LO 2 - Possess high-level critical and creative thinking skills, are capable of self-regulation and reflection to solve professional problems

LO 3 - Demonstrate knowledge of and adherence to ethical and legal norms in research and 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.

LO 4 – They are able to form judgments when conducting an independent assessment, interpretation and synthesis of experimental data obtained during laboratory work and be able to link them with the relevant theory.

LO 5 – Apply knowledge and understanding when using innovative teaching methods and new technologies in the field of chemical disciplines.

LO 6 – They are able to conduct analyses in the study, solving problems of a pedagogical or methodological nature in English, Russian and Kazakh.

LO 7 – They know and apply the basic foundations in the field of natural sciences that contribute to the formation of a highly educated person with a broad outlook and a culture of thinking; the content of the regulatory framework of the education system of the Republic of Kazakhstan (laws, concepts, international agreements, standards, instructions, rules, etc.)

LO 8 – He is able to analyze, evaluate and adjust the processes and results of his own pedagogical activity.

LO 9 – Apply knowledge on the theoretical and practical foundations of inorganic, organic, analytical chemistry, according to the methodology of teaching chemistry in professional activity.

LO 10 – Possess methods of using modern educational (teaching and controlling) technologies; techniques and methods of chemical experiment

LO 11 – They know the structure and content of the basic chemistry course in a secondary school; they are able to plan the educational process, design lessons; use specific techniques characteristic of chemical science itself; solve computational and experimental tasks provided for in the school curriculum.

LO 12 – They have the skills to acquire new knowledge necessary for daily professional activities and continuing education in postgraduate education.

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	LO 9	LO 10	LO 11	V 12
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) State mandatory standard of higher and Postgraduate education, approved by Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2. Registered with the Ministry of Justice of the Republic of Kazakhstan on July 27, 2022 No. 28916.

2) Professional standard "Teacher", approved by order of the Acting Minister of Education of the Republic of Kazakhstan dated December 15, 2022 year # 500. Registered with the Ministry of Justice of the Republic of Kazakhstan on December 19, 2022 No. 31149.

3) Methodological recommendations on the organization and conduct of pedagogical practice for students of the field of education "pedagogical sciences. Order No. 125 of 27.03.2023