NON-COMMERCIAL JOINT STOCK COMPANY
KAZAKH NATIONAL PEDAGOGICAL UNIVERSITY
NAMED AFTER ABAI

FACULTY OF SCIENCE AND GEOGRAPHY

APPROVED
Dean of the Faculty
K.D. Kaimuldinova
2023 y.

DEVELOPMENT PLAN
OF THE EDUCATIONAL PROGRAM
7M05301-CHEMISTRY

2023-2029

ALMATY, 2023

The Development Plan of the Educational Program has been developed based on the following documents: On the Nationwide Priorities of the Republic of Kazakhstan until 2025 (Decree of the President of the Republic of Kazakhstan dated 26.02.2021 № 520) https://adilet.zan.kz/rus/docs/U2100000520/history Development Strategy «ABAI UNIVERSITY» 2023-2029 y.

https://www.kaznpu.kz/docs/docs/260224/Prog_ru.pdf

Approved
At the meeting of the Faculty Council of Natural Sciences and Geography
Minutes № 5 dated 25.01.2023

Reviewed
At the meeting of the Department of "Chemistry"
Minutes №6 dated 18.01.2023
Head of Department _____ Zh.S. Mukataeva

FOREWORD

The development plan for the educational program 7M05301 – Chemistry for the years 2023-2029.
Code and name of the field of education: 7M05 – Natural Sciences, Mathematics, and Statistics
Code and name of the preparation direction: 7M053 – Physical and Chemical Sciences
Group of educational programs: M053 – Chemistry**.**
The program strategy is aimed at the formation and implementation of an established competency model, as well as the expansion of the potential circle of employers.
Mission of the educational program: To form a human resources potential – highly qualified specialists competitive in the domestic and international labor markets, in accordance with their needs and the development prospects of the country and region.
Objective of the educational program: Training of highly qualified, competitive specialists who possess deep, systematic theoretical knowledge and practical skills in fundamental and relevant areas of chemistry, capable of self-development and realization in scientific research, analytical, and pedagogical activities.

In the development of the educational program, national priorities for the development of the Republic of Kazakhstan until 2029 and the development strategy of "Abai University" for 2023-2029 have been taken into account, as well as the requirements of employers.

ANALYSIS OF THE CURRENT SITUATION

Developers of the ОП development plan	Representatives of the department: Mukataeva Z.S., Korganbayeva Z.K., Akylbekova T.N., Chinibaeva N.S. Employers: Kudreeva L.K. KazNU named after al-Farabi, Bektenov N.A., Sagymbaeva A.E., KazNPU named after Abai Students: Dyusembaeva G.T., ОП 7M05301 – Chemistry
Academic degree:	Master of Natural Sciences in the Educational Program 7M05301 – Chemistry
Year of establishment:	2019
Language of instruction:	Kazakh, Russian
Mode of study:	Full-time
Duration of study:	2
Number of credits:	120
Uniqueness of the educational program:	The educational program 7M05301 – Chemistry is distinguished by being developed with consideration of the regional specifics and the strategic objectives of the university. The program is aimed at training specialists in the field of chemistry who will be able to successfully address the challenges faced by the region and the university.Advantages of the educational program: 1.Relevance and demand for knowledge: The program covers a wide range of current topics and issues in the field of chemistry, allowing graduates to be in demand in the labor market. 2.Individual approach to education: The program involves individualized work with each student, enabling them to develop their abilities and interests in the field of chemistry. 3.Practical orientation: The educational program provides for internships and practice sessions in various organizations and enterprises, helping students apply their acquired knowledge in practice. 4.Innovative approach: The program includes modern teaching methods and the latest technologies, which contributes to the development of innovative thinking in students.
Graduate Profile	✓ Able to assess current problems and achievements in modern chemistry. ✓ Capable of designing and conducting comprehensive research, including interdisciplinary studies, based on a holistic, systematic scientific worldview. ✓ Possesses communication skills, creativity, stress resilience, multilingualism, respect for the environment, and tolerance.

	✓ Practical orientation and entrepreneurial skills. ✓ Deep understanding of digital environments and skills in creating new content. ✓ Has in-depth knowledge of contemporary issues in chemistry. ✓ Ability to lead others, be a leader, make independent decisions, and demonstrate creativity and constructive social activity.
Types of Professional Activity	✓Research and development ✓Academic and pedagogical ✓Project and technological ✓Organizational and managerial ✓Scientific and technological
Partners in Academic Mobility	*External Academic Mobility* Pomorska Academy in Słupsk (Poland); University of Poitiers (France); Lille University (France); University of Lorraine (France); Heidelberg University (Germany); Adam Mickiewicz University (Poland); Mykolas Romeris University (Lithuania); Vilnius University (Lithuania); Vytautas Magnus University (Lithuania); University of Debrecen (Hungary); Nigde Omer Halisdemir University (Turkey); Muğla Sıtkı Koçman University (Turkey); Giresun University (Turkey); Fırat University (Turkey). *Internal Academic Mobility* Aktobe University named after S. Baisev; Atyrau University named after H. Dosmukhamedov; Atyrau Regional University named after K. Zhubanov; Kyzylorda University named after Korkyt Ata.
Employment of Graduates	100 %
Availability of an appendix to the license for the direction of personnel training	№ 0137373
Main enterprises with which cooperation is carried out:	JOINT-STOCK COMPANY "INSTITUTE OF FUEL, CATALYSIS AND ELECTROCHEMISTRY NAMED AFTER D.V. SOKOLSKY", SCIENCE-PRODUCTION ENTERPRISE "ANTIGEN" LLP, JOINT-STOCK COMPANY "INSTITUTE OF CHEMICAL SCIENCES NAMED AFTER A.B. BEKTUROV", KAZAKH NATIONAL UNIVERSITY NAMED AFTER AL-FARABI
Expected Final Results of the Implementation of the Educational Program Development Plan	-Improvement of the educational and professional activities of students and faculty. -Enhancement of faculty qualifications in the field of innovative teaching technologies. -Development of educational and methodological literature in English. -Participation of students and faculty in competitions and the implementation of projects. -Improvement of the information and technical infrastructure. -Development and operation of joint educational programs with domestic and foreign universities. -Increase in the number of faculty publications in high-ranking journals (Q1, Q2) according to Journal Citation Reports (JCR), WoS, and Scopus. -Increase the proportion of faculty involved in research activities.

Main Risks of the Educational Program

Name of the risk	**Possible consequences**	**Management mechanisms and measures**
Competition in the	Formation of public	Creating a recognizable image of the educational

education services market	opinion about the educational program	program, increasing the number of university grants, positive reviews about the program, trust, interest, and activity of the Alumni Association (appearances in the media), promoting the quality of education at ABAI UNIVERSITY to potential employers in order to increase the flow of interesting job vacancies for our students and graduates.
Contingent of students	Reduction of the number of students	Implementation of a set of measures aimed at retaining the student body, introducing more effective career orientation activities, systematic interaction with alumni after graduation, and increasing practice-oriented courses within the educational program.
Economic crisis	Decrease in purchasing power	Providing the option of installment payment for debts, individualization of education, motivation to continue studying, individual and group psychological counseling.

SWOT Analysis of Educational Program Implementation

	Strong sidesh	**Weak points**
Internal factors	- The goals and strategy of the program are focused on forming and implementing a competency-based model, as well as expanding the potential circle of employers; - In-depth study of subjects to achieve the necessary qualification in the chosen field of chemistry; - Highly qualified faculty and staff; - Research activities conducted in accordance with the real needs of enterprises; - Availability of developed information infrastructure covering all areas of activity; - Active position of the Student Council; - Marketing activities for effective interaction between the university and employers; - High graduate employment rate; - Practice-oriented approach and a wide range of implemented educational programs; - Availability of modern equipment and instruments; - Alumni working in their field of study; - Student-centered learning; - Continuous monitoring and periodic evaluation of programs.	-Insufficient number of students; -Lack of joint educational programs with foreign universities -Insufficient level of research potential implementation (low level of commercialization) -Low activity of the Alumni Association and absence of an endowment fund
	Favorable opportunities	**Threats and risks**
External factors	- Utilization of academic freedom opportunities; - Availability of numerous research topics, within which graduation projects can be carried out; - Participation of the department's faculty in international educational exhibitions and fairs; - Informing students about vacancies, internships, and the labor market situation; - Focusing on developing the ability for self-education in various fields: academic and scientific activities, creativity, and professional careers; - A relatively high level of effectiveness in conducting educational activities, with an increase in student engagement; - Development of distance learning technologies.	-Lack of a systematic approach to improving qualifications and retraining of faculty and teaching staff; -Low foreign language proficiency of faculty and students; -Absence of stable scientific collaborations with educational and research organizations from foreign countries.

1. MAIN OBJECTIVES OF THE EDUCATIONAL PROGRAM DEVELOPMENT

Direction 1. Expanding access to the university's educational services

№	Performance indicators	Unit. Change.	2023	2024	2025
1.	The contingent of students in the educational program 7M05301 – Chemistry.	Unit.	3	6	9
2.	Admission to the educational program.	Unit.	2	4	5
3.	Graduation.	Unit.	1	2	4

Direction 2. Innovative support of educational activities

№	Performance indicators (share, percentage, quantity)	Unit. Change.	2023	2024	2025	Responsible executors	Form of completion
1.	Decision-making on the type of educational program (existing, new, innovative, interdisciplinary, additional (minor), joint educational program)	Unit.	Д -1	Д – 1	Д- 1	Graduating department	ОП
2.	Participation of the educational program in program rankings	fact	+	+	+	Graduating department	Ranking results of the educational program
3.	Accreditation of the educational program	fact			+	Graduating department	Accreditation result
4	Post-accreditation monitoring completion	fact	+			Graduating department	Monitoring results
5.	Updating the educational program in line with labor market requirements	fact	+	+	+	Graduating department	Updated educational program, expert opinions
6.	Analysis of the educational program for alignment with the university's strategic development plan	fact	+	+	+	Graduating department	Department meeting minutes
7.	Conducting roundtable discussions on integrating competencies into the educational process	fact	+	+	+	Graduating department, employers	Report, meeting minutes
8.	Number of industry specialists involved in the educational process	Unit.	3	4	5	Graduating department	Agreements, memorandums
9.	Participation of potential stakeholder representatives as experts for the educational program	fact	+	+	+	Graduating department, employers	Department meeting minutes
10.	Analysis of the availability of faculty with the corresponding potential for the development of the educational program	%	100	100	100	Graduating department	Faculty staffing form
11.	Number of faculty members who have completed professional development courses in the subject area	%	100	100	100	Graduating department, faculty	Certificates, diplomas
12.	Professional development and degree advancement of faculty through PhD studies and internships	fact	+	+	+	Graduating department, faculty	Certificates, diplomas
13.	Development of digital knowledge and research competencies, enabling	fact	+	+	+	University, department,	Certificates, diplomas

	graduates to acquire expert-level IT competencies and skills in research activities.					faculty	
14.	Provision of nanodegrees for future educators	fact	+	+	+	University, department, faculty	Certificates, diplomas
15.	Improving the quality of faculty composition through the organization of Winter and Summer schools for faculty	fact	+	+	+	University, department, faculty	Certificates, diplomas
16.	Organization of work within the framework of the “Silver University” to provide quality education for everyone, at any age. (Specializations to choose from: digital education, inclusive education, education based on digital technologies)	fact	+	+	+	University, department	Report
17.	Percentage of graduates of the educational program employed in the first year after graduation (out of the total number of graduates)	%	100	100	100	Graduating department	Employment results
18.	Percentage of graduates of the educational program who were trained under the state order and employed in the first year after graduation from the university in the respective educational program.	%	100	100	100	Graduating department	Employment results
19.	Percentage of university graduates participating in the evaluation of the quality of educational services (full-time education)	%	20	25	30	Graduating department	Participation in the commission
20.	Involvement of master’s students in determining the content of the program	fact	+	+	+	Graduating department, students	In the composition, make up a leu OP
21.	The number of employers participating in the evaluation of the quality of specialist training	Unit.	2	5	5	Employers of the educational program	Agreements, memorandums, expert opinions
22	The share of students participating in the evaluation of the pedagogical activities of faculty	%	50	50	50	Graduating department, students	Survey results
23	The number of educational and methodical manuals developed in the Kazakh language	Unit.	4	5	7	Graduating department, students	Developments in subjects
24	The number of educational and methodical publications developed by faculty based on the specifics of the educational program	Unit.	-	1	2	Graduating department	Educational and methodical publications, textbooks

Direction 3. Internationalization of the program

№	**Performance indicators (share, percentage, quantity)**	**Unit .change.**	**2023**	**2024**	**2025**	**Responsible executors**	**Form of completion**

1.	Inter-university partnership within the framework of the educational program: Dual-degree educational programs.	Unit.	-	-	1	Graduating department	Joint educational programs, Double degree programs
	with a foreign university	Unit.	-	-	1		
	with a Kazakhstani university	Unit.	-	1	1		
2.	The number of students who completed research internships at leading foreign universities, research centers, and companies	Unit.	1	1	1	Graduating department	Responsible executors
3.	Number of students in the educational program participating in the internal outgoing academic mobility program.	Unit.	-	1	2	Graduating department, academic mobility center	Order, student transcript
4.	Number of students in the educational program participating in the internal incoming academic mobility program.	Unit.	-	1	1	Graduating department, student	Order, student transcript
5.	Number of faculty members participating in the internal outgoing academic mobility program.	Unit.	1	1	1	Graduating department, faculty, academic mobility center	Responsible executors
6	Number of faculty members participating in the internal incoming academic mobility program.	Unit.	1	1	1	Graduating department, faculty, academic mobility center	Report
7.	Number of invited foreign scholars.	Unit.	-	1	1	Graduating department, faculty	Report
8.	Number of faculty members participating in the external outgoing academic mobility program.	Unit.	1	1	1	Graduating department, faculty, academic mobility center	Report
9	Internships within international exchange programs (ERASMUS+, DAAD, Mevlana, Bolashak))	Unit.	-	1	1	Graduating department, faculty, academic mobility center	Report

Direction 4. Expansion of the scope of scientific research and innovations

№	**Performance indicators (share, percentage, quantity)**	**Unit.change**	**2023**	**2024**	**2025**	**Responsible executors**	**Form of completion**
1.	Number of faculty members involved in educational and research projects	Unit.	2	2	3	Graduating department	Report
2.	Number of faculty members involved in the implementation of fundamental and applied research	Unit.	2	2	3	Graduating department	Report
3.	Number of publications in journals indexed in the 1st, 2nd, and 3rd quartiles according to the Journal Citation Reports by Clarivate Analytics or journals with a percentile rank based on CiteScore in the Scopus database.	Unit.	1	2	3	Graduating department	Report

4.	Number of publications of doctoral students' research articles in journals with a non-zero impact factor, indexed in Thomson Reuters/Scopus databases.	Unit.	1	2	3	graduate department doctoral students	Report
5	International Scientific and Practical Conference "Modern Aspects of Chemical Science and Chemical Education: Theory and Practice," Almaty.	fact	-	+	-	Graduating department	Media information and social media links
6	Round table "Path to Science" – Scientific and Methodological Seminar with Meetings of Outstanding Chemists and Scientists.	fact	+	+	+	Graduating department	Media information and social media links
7	Number of research projects conducted within the framework of international cooperation.	Unit.	1	1	1	Graduating department	Report
8	Number of publications in publications recommended by the Committee for Control in Education and Science (CCES).	Unit.	3	6	8	Graduating department	Report
9	Number of faculty members participating in the National "Best Teacher" competition.	Unit.	1	1	1	Graduating department	The result of the contest
10	Number of publications by students.	Unit.	1	1	1	Graduate department student	Report
11	Number of students participating in scientific research and competitions.	Unit.	1	1	1	Graduate department student	Report
12	Operation of scientific centers and laboratories: • Organic Synthesis Laboratory • Physico-Chemical Methods of Research Laboratory • Inorganic Chemistry Laboratory • Analytical Chemistry Laboratory • Chemical Technology Laboratory • Petrochemistry and Organic Chemistry Laboratory	fact	+	+	+	Graduate department student	Classroom Fund

Direction 5. Improvement of infrastructure and material-technical base.

№	**Performance indicators (share, percentage, quantity)**	**Unit. Change.**	**2023**	**2024**	**2025**	**Responsible executors**	**Form of completion**
1	Development of the computer park.	fact	+	+	+	Graduating department	Infrastructure modernization.
2	Acquisition of software.	fact	+	+	+	Graduating department	Infrastructure modernization.
3	Acquisition of laboratory equipment and others.	fact	+	+	+	Graduating department	Infrastructure modernization.
4	Replenishment of the library collection.	fact	+	+	+	Graduating department	Infrastructure modernization.
5	Purchase of furniture.	fact	+	+	+	Graduating department	Infrastructure modernization.

Direction 6. Career guidance work within the framework of the educational program.

№	Performance indicators (share, percentage, quantity)	Unit. Change.	2023	2024	2025	Responsible executors	Form of completion
1	Providing presentations to students and school teachers on online and offline platforms, a handout with information about this educational program, a list of subjects for the UNT, a list of documents required for admission, as well as the university's rating, its material and technical base and the possibility of admission to ABAI UNIVERSITY	fact	+	+	+	Graduating department	Report, social media links
2	Meetings of the Council for Career Guidance and recruitment of applicants, organization of work of working groups in key areas.	fact	+	+	+	Graduating department	Student body report
3	The round table "Career guidance is an investment in the future	fact	+	+	+	Graduating department	Report

Direction 7. Educational work within the framework of the educational program

№	Performance indicators (share, percentage, quantity)	Unit. Change.	2023	2024	2025	Responsible executors	Form of completion
1	Carrying out events within the framework of the Programs and according to the plan of educational work of the Institute, active participation in the social life of the university	fact	+	+	+	Graduating department	Report, social media links
2	Holding events focused on the national educational ideal, the system of basic national values (The Concept of the Great Abai "Tolyk Adam")	fact	+	+	+	Graduating department	Report, social media links
3	Implementation of comprehensive measures: development of a training and talent development program, development of coaching, mentoring and mentoring methods, work of a social and psychological assistance service.	fact	+	+	+	Graduating department	Report, social media links