

ABAI KAZAKH NATIONAL PEDAGOGICAL UNIVERSITY
INSTITUTE OF NATURAL SCIENCES AND GEOGRAPHY

**THE DEVELOPMENT PLAN OF EDUCATIONAL PROGRAM
6B01512 – CHEMISTRY-BIOLOGY FOR THE YEARS 2022-2025.**

Almaty, 2022

The development plan of the OP was developed on the basis of documents: On National priorities of the Republic of Kazakhstan until 2025 (Decree of the President of the Republic of Kazakhstan dated 02/26/2021 №520.) <https://adilet.zan.kz/rus/docs/U2100000520>, Development Strategy "ABAI UNIVERSITY for 2022-2025 (approved by the Decision of the Board of Directors of JSC KAZNPU named after Abaya dated 9.12.2021, Protocol № 12)
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Approved
at the meeting of the Council of the Institute of "Natural Sciences and Geography"

Protocol №__5__ from «__25__»__01__2022y.

Considered
at the meeting of the EP Chemistry group

Protocol №__5__ from «__18__»__01__2022y.

Head of the EP

Zh.Mukatayeva

Abai University focuses on the student's personality, creates a harmonious educational space for mastering knowledge, professional socialization and adaptation, instills respect for the future profession, develops critical thinking and tolerance skills.

PREFACE

The development plan of the educational program 6B01512 – Chemistry-Biology for 2022-2025.

Code and name of the field of education: 6B01 Pedagogical sciences

Code and name of the training area: 6B015-Teacher training in natural science subjects

Group of educational programs: B012 Training of chemistry teachers

The strategy of the program is aimed at the formation and implementation of the established competence model, as well as at expanding the possible range of employers.

The mission of the educational program is to train teachers who are able to anticipate the needs of modern education, based on advanced methods, national heritage and world approaches.

The purpose of the educational program is to train teachers of chemistry and biology with practical skills and leadership qualities, capable of educating and forming a comprehensively developed student personality; formation of systematized knowledge in the field of chemistry and biology; organization of the educational process in chemistry and biology at the modern scientific and methodological level; implementation of scientific research.

ANALYSIS OF THE CURRENT SITUATION

General information about the educational program

Developers of the development plan for educational programs	Representatives of the department: Mukataeva Zh., Karazhanova D. Kozhagulova Zh., Korganbaeva Zh. Employers: Nauryzbaev A. Director of secondary school №26 Almaty region, Ili district; Bidaybekova E., director of the school - gymnasium № 159 in Almaty .; Shazhabaeva K. director of CSI specialized lyceum № 92 named after Mahatma Gandhi, Almaty, Bostandyk district. Students: Galimova N. doctoral student of EP Chemistry Kuanyshtai A. Master student of EP 6B01512 - Chemistry-Biology Shamova S. Student of EP 6B01512 - Chemistry-Biology
Academic degree:	Bachelor of Education in Educational Program 6B01512 - Chemistry-Biology
Opening year:	2019
Teaching language:	kazakh, russian
Form of study:	full - time
period of study	4
volume of credits	240
The uniqueness of educational programs	Quality education through interaction with potential employers. Partnership under the academic mobility program. Having the status of a national university. The location of the campus is in the historical center of Almaty. Have a stable reputation in the market.
Graduate Model	<ul style="list-style-type: none"> ✓ able to evaluate current problems and achievements of modern chemistry ✓ able to design and carry out complex research, including interdisciplinary, based on a holistic systemic scientific worldview ✓ communication skills, creativity, stress resistance,

	<p>multilingualism, respect for the environment, tolerance</p> <ul style="list-style-type: none"> ✓ Practical orientation and entrepreneurial skills ✓ deep understanding of digital environments, skills of creating new content ✓ has in-depth knowledge of modern problems of chemistry ✓ the ability to lead others, to be a leader, to make independent decisions, the ability to be creative and constructive social activity
Types of professional activity	<ul style="list-style-type: none"> ✓Scientific research ✓Scientific and pedagogical ✓Design and technological ✓Organizational and managerial ✓Scientific and technological
Academic Mobility Partners (internal and external)	<p><i>External academic mobility.</i></p> <p>Pomeranian Academy in Slupsk (Poland); University of Poitiers (France); University of Lille (France); University of Lorraine (France); Heidelberg University (Germany); Adam Mickiewicz University (Poland); Mikolas-Romiris University (Lithuania); Vilnius University (Lithuania); Vytautas the Great University (Lithuania); University of Debrecen (Hungary); Nigde Omer Halisdemir University (Turkey); Muğla Sıtkı Koçman öiversitesi (Turkey); Giresun University (Turkey); Firat University (Turkey); Moscow City Pedagogical University (Russia); Volgograd State Socio-Pedagogical University (RF).</p> <p><i>Internal academic mobility.</i></p> <p>Aktobe University named after S.Baishev; Atyrau University named after H. Dosmukhamedov; ARU named after K. Zhubanov; Pavlodar Pedagogical University; Kyzylorda University named after Korkyt Ata.</p>
Employment of graduates	-
Availability of an application to the license for the direction of personnel training	№ 0137373
The main enterprises with which cooperation is carried out	<p>CSI "Department of Education of Almaty city", SI "Department of Education of Almaty region" secondary school №26 Almaty region, Ili district, gymnasium №159 Almaty., CSI specialized lyceum</p> <p>№ 92 named after Mahatma Gandhi, Almaty Bostandyk district, etc.</p>
Expected end results of the implementation of the EP development plan	<ul style="list-style-type: none"> - improving the educational and professional activities of students and teaching staff; - advanced training of teaching staff in the field of innovative learning technologies; -development of educational and educational-methodical literature; -development and operation of joint educational programs with domestic and foreign universities

The main risks of the educational program

Name of the risk	Possible consequences	Management mechanisms and measures
Competition in the market of educational services	Formation of public opinion about this educational program	Creating a recognizable image of the educational program, increasing the number of university grants, positive feedback about this EP, trust, interest, activity of the Association of graduates (appearances in the media), advertising the quality of ABAI UNIVERSITY education to potential employers in order to increase the flow of interesting vacancies for our students and graduates.
Contingent of	Reducing the	implementation of a set of measures aimed at maintaining the

students	contingent of students	contingent, the introduction of more effective forms of career guidance; systematic interaction with graduates after graduation, increasing practice-oriented courses on educational programs
Economic crisis	Decrease in solvency	providing the possibility of phased payment of debts, individualization of education, motivation to continue education, individual and group psychological consultations.

SWOT analysis of the implementation of educational programs

	Strengths	Weak sides
Internal factors	<ul style="list-style-type: none"> - The goals and strategy of the program are aimed at the formation and implementation of the established competence model, as well as at expanding the possible range of employers; - In-depth study of disciplines to achieve the necessary degree of qualification in the field of chemistry chosen by the student. - Highly qualified teaching staff; - Research activities carried out in accordance with the real requests of enterprises; - Availability of a developed information infrastructure covering all types of activities; - Active position of the Student Council; - Marketing activity for effective interaction between the university and the employer; - High level of employment of graduates ; - Practical orientation and a wide range of implemented educational programs; -Availability of modern equipment and devices; -The work of graduates in their specialty -Student-oriented learning; - Continuous monitoring and periodic evaluation of programs. 	<ul style="list-style-type: none"> -Lack of joint educational programs with foreign universities; - Low activity of the Association of graduates and the absence of an endowment fund.
	Favorable Opportunities	Threats and risks
External factors	<ul style="list-style-type: none"> - Using the opportunities of academic freedom; -The presence of a large number of initiative topics of research works, within which graduation works can be performed; -Participation of faculty of the department in international educational exhibitions and fairs; -Informing students about vacancies and internships and the situation on the labor market; - Orientation of the individual to the formation of the ability to self-education in various fields: educational and scientific activities, creativity, professional career; -A fairly high level of effectiveness of educational activities, an increase in the activity of students. -Development of distance learning technologies. 	<ul style="list-style-type: none"> -High competition in the educational services market; - Outflow of students; - Pandemic; - Economic crisis; -The general trend of increasing the cost of paid education.

1. THE MAIN OBJECTIVES OF THE DEVELOPMENT OF THE EDUCATIONAL PROGRAM

Direction 1. Expanding access to educational services of the University

<i>Nº</i>	Performance indicators	Unit measurements	2022	2023	2024	2025
1.	The contingent of students in EP 6B01512 - Chemistry-Biology	Unit	253	350	350	360
2.	Admission by educational programs	Unit	80	90	95	100
3.	Graduates	Unit	-	96	70	80

Direction 2. Innovative provision of educational activities

<i>№</i>	performance indicators (share, percentage, quantity)	Unit measurements	2022	2023	2024	2025	Responsible executors	Completion Form
1.	Deciding on the type of EP (current, new, innovative, interdisciplinary, additional (minor), joint EP	unit	current educational program - 1	current educational program - 1	current educational program - 1	current educational program - 1, JEP-1	graduating department	EP, joint educational program
2.	Participation of educational programs in the ratings of educational programs	fact	+	+	+	+	graduating department	The results of the rating of educational programs
3.	Accreditation EP	fact	+			+	graduating department	Result Accreditation
4	passing post-accreditation monitoring	fact		+			graduating department	Monitoring results
5.	Updating educational programs taking into account the requirements of the labour market	fact	+	+	+	+	graduating department	Updated educational program, Expert opinion
6.	Analysis of the EP for compliance with the strategic development plan of the university	fact	+	+	+	+	graduating department	Minutes of meetings of the Department
7.	Conducting round tables on the introduction of competencies into the educational process	fact	+	+	+	+	graduating department, работодатели	Reference, protocol
8.	The number of specialists involved in the educational process in the relevant industry	people	3	3	4	5	graduating department	Contracts, memorandums
9.	Analysis of the availability of a teaching staff with the appropriate potential for the development of EP	%	100	100	100	100	graduating department	The staff form of the teaching staff of the department
10.	The number of teaching staff who completed advanced training courses in the subject area	%	100	100	100	100	graduating department teaching staff	Certificates, diplomas
11.	Share of EP graduates employed in the first year after graduation (out of the total number of graduates)	%	100	100	100	100	graduating department	Results employment
12.	The share of graduates of the EP, who studied under the state order, were employed in the first year after graduation from the university under the EP	%	100	100	100	100	graduating department	Results employment
13	The share of university graduates participating in the assessment of the quality of educational services (full-time education)	fact	+	+	+	+	graduating department	Presence in the commission
14	Availability of integrated training programs for management in	fact	+	+	+	+	graduating department	report

	inclusive education							
15	To strengthen the potential of pedagogical education, the development of new educational programs	fact	-	+	+	+	graduating department	report
16	implementation of online courses (MOOCs)	fact	-	+	+	+	graduating department teaching staff	course development
17	To form a purposeful system of continuous work with gifted children and talented youth, the organization of work within the framework of the Kids University project	fact	-	+	+	+	graduating department teaching staff	report
18.	Organization of work within the framework of "Life-long Learning" for obtaining quality education for everyone and at any age.	fact	-	+	+	+	graduating department	report
19.	Participation of students in determining the content of the program	fact	+	+	+	+	graduating department, students	As part of the compilers of the EP
20.	The number of employers participating in the assessment of the quality of training of specialists	unit	2	2	5	5	EP's employers	Contracts, memorandums, expert opinions
21.	The proportion of students participating in the assessment of teaching activities of teaching staff	%	50	50	50	50	graduating department, students	Survey results
22	The number of teaching aids developed in the Kazakh language	unit	2	4	5	7	graduating department, students	Developments by disciplines
23	The number of educational and methodological publications developed by the teaching staff on the specifics of the EP	unit	1	-	1	2	graduating department	educational and methodical publications, textbooks
24	Opening of pedagogical retraining courses for graduates of non-pedagogical specialties	fact	-	+	+	+	graduating department	Order on admission of students
25	Preparation of graduates for NCT	fact	+	+	+	+	graduating department	Certificates NCT
26	To develop the digital ecosystem: create -center for innovative educational digital technologies, transforming traditional didactic models into innovative ones using digital educational technologies; - an online platform with access to video lectures, electronic interactive and multimedia educational materials on the main special courses of educational programs; - create authored teaching staff courses at the leading republican sites of open online education (Ed Tech-kz, Open Edx-kz, etc.) and include them in the curricula; - gamification (the use of game	fact	-	+	+	+	graduating department	

	<p>techniques in the educational process that affect the increase in the involvement and motivation of students);</p> <ul style="list-style-type: none"> - development of MOOC platforms (massive open online courses); - use of monitoring and evaluation systems based on the methods of Open-Book, Open-Paper, Critical Thinking, Take-Home exam; - the use of proctoring technology using biometric data of students. 							
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Direction 3. Internationalization of the program

<i>Nº</i>	Performance indicators (share, percentage, quantity)	Unit measurements	2022	2023	2024	2025	Responsible executors	Completion Form
1.	Interuniversity partnership within the framework of educational programs: Double-degree EP	unit	-	-	-	1	graduating department	joint educational program, Double-degree EP
	with a foreign university	unit	-	-	-	1		
	with a Kazakh university	unit	-	-	1	1		
2.	Number of students EP participating in the internal Outgoing Academic mobility program	unit	-	-	1	2	graduating department, academic mobility center	Order, transcript of students
3.	The number of students participating in the internal incoming academic mobility program	unit	-	-	1	1	graduating department student	Order, transcript of students
4.	Number of teaching staff participating in the internal Outgoing Academic mobility program	unit	-	1	1	1	graduating department teaching staff	Order, report
5.	Number of teaching staff participating in the internal Incoming Academic mobility program	unit	-	1	1	1	graduating department teaching staff	report
6.	Number of foreign scientists involved	unit	-	-	1	1	graduating department	report
7.	Number of teaching staff participating in the external Outgoing Academic mobility program	unit	-	1	1	1	graduating department teaching staff academic mobility center	report

Direction 4. Expanding the scope of scientific research and innovation

<i>Nº</i>	Performance indicators (share, percentage, quantity)	Unit measure	2022	2023	2024	2025	Responsible executors	Completion Form
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1.	Number of teaching staff participating in educational and research projects	peo ple	1	1	1	2	graduating department	report
2.	The number of teaching staff involved in the implementation of fundamental and applied research	peo ple	1	1	1	2	graduating department	report
3.	The number of publications in the publications included in the 1 st , 2 nd and 3 rd quartiles according to the Journal Citation Reports of Clarivate Analytics or having a percentile indicator in the Scopus database according to the Cite Score	unit	1	1	1	2	graduating department	Database metrics
4.	The number of publications of scientific articles of doctoral students in journals with a non-zero impact factor included in databases Thomson Reuters/Scopus	unit	1	1	2	3	graduating department doctoral students	Database metrics
5	International scientific and practical conference "Modern aspects of chemical science and chemical education: theory and practice" Almaty	fact	+	-	+	-	graduating department	Collection of the magazine, Information in the media and links in social networks
6	Round table "The way to science" scientific and methodological seminar meeting of outstanding chemists-scientists	fact	-	+	-	-	graduating department	Collection of the magazine, Information in the media and links in social networks
7	Number of research projects carried out within the framework of international cooperation	unit	-	-	1	1	graduating department	report
8	The number of publications of the teaching staff in publications recommended by the Committee for Quality Assurance in Education and Science (CQAESc)	unit	3	3	6	8	graduating department	report
9	The number of teachers participating in the Republican contest The best teacher	unit	-	1	1	1	graduating department	Competitio n result
10	Number of student publications	fact	+	+	+	+	graduating department student	report
11	Number of students taking part in scientific research and competitions	unit	-	1	1	1	graduating department student	report
12	Functioning of scientific centers, laboratories: • Laboratory of organic synthesis • Laboratory of physical and chemical research methods • Laboratory of inorganic chemistry	fact	+	+	+	+	graduating department student	auditorium Fund

	<ul style="list-style-type: none"> • Laboratory of Analytical Chemistry • Laboratory of chemical technology • Laboratory of petrochemistry and organics 							
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Direction 5. Improvement of infrastructure and material and technical base

№	Performance indicators (share, percentage, quantity)	Unit measurements	2022	2023	2024	2025	Responsible executors	Completion Form
1	Development of a computer park	fact	+	+	+	+	graduating department	infrastructure modernization
2	Software acquisition	fact	+	+	+	+	graduating department	infrastructure modernization
3	Purchase of laboratory equipment, etc.	fact	+	+	+	+	graduating department	infrastructure modernization
4	Replenishment of the library fund	fact	+	+	+	+	graduating department	infrastructure modernization
5	Purchase of furniture	fact	+	+	+	+	graduating department	infrastructure modernization

Direction 6. Career guidance work within the framework of the EP

№	Performance indicators (share, percentage, quantity)	Unit measurements	2022	2023	2024	2025	Responsible executors	Completion Form
1	Providing presentations to students and teachers of schools on online and offline platforms, handouts with information about this educational program, a list of subjects for passing the UNT, a list of documents required for admission, as well as the rating of the university, its material and technical base and the possibility of admission to ABAI UNIVERSITY	fact	+	+	+	+	graduating department	Report, links in social networks
2	To identify talented students, the organization of group work for students of grades 9-10-11 on the basis of practice in accordance with the direction of interest of the student	fact	-	+	+	+	graduating department, teaching staff, students	Memorandum, agreement
3	Conducting meetings of the department on career guidance and preparation of a set of applicants, organizing the work of working groups in key areas.	fact	+	+	+	+	graduating department	Report on the contingent of students
4	Conducting online lessons with the help of teaching staff providing methodological assistance in order to support graduates of Abai University employed in rural areas	fact	-	+	+	+	graduating department	Report Protocol
5	During the internship, providing methodological support to teachers and secondary school students in scientific project competitions and Olympiads	fact	+	+	+	+	graduating department	Report Protocol

6	Creating a collection of video tutorials in the direction of "Introduction to chemical science" for secondary school students	fact	+	+	+	+	graduating department	Report Protocol
7	Implementation of the KIDS UNIVERSITY project	fact	-	+	+	+	graduating department	Report
8	Holding an event "Student for one day" to promote early self-determination of schoolchildren in choosing a profession	fact	+	+	+	+	graduating department	Report
9	Organization of a special competition among second-year undergraduate students to create Honors College (Excellent students of the university, an elite group of the most advanced students)	fact	-	+	+	+	graduating department	Report

Direction 7. Educational work within the framework of Educational programs

№	Performance indicators (share, percentage, quantity)	Unit measurements	2022	2023	2024	2025	Responsible executors	Completion Form
1	Carrying out activities within the framework of the Programs and according to the plan of educational work of the Institute	fact	+	+	+	+	graduating department	Report, social media links
2	Activation of the social project of the nationwide volunteer movement "Accelerator of Good: Izgilik elshysi" (attracting young people to volunteering, instills humanism, responsiveness, compassion, integrity and the spirit of Kazakhstani patriotism)	fact	+	+	+	+	graduating department	Report, social media links
3	Measures to foster integrity and anti-corruption values	fact	+	+	+	+	graduating department	report
4	The opening HUB of student entrepreneurship, Attracting students to professional tutoring, preparing children for Olympiads, organizing school-wide educational events, working with difficult teenagers, developing communication skills in Kazakh, Russian, English in Speaking Club	fact	-	+	+	+	graduating department, students	report