

NON-PROFIT JOINT STOCK COMPANY
KAZAKH NATIONAL PEDAGOGICAL UNIVERSITY NAMED AFTER ABAYA

INSTITUTE OF MATHEMATICS, PHYSICS AND INFORMATICS

Institute director
SH.J. Khamraev
" 31 " _____ 2022



DEVELOPMENT PLAN
OF EDUCATIONAL PROGRAMS
6B01504 - Physics

For 2022-2025y

Almaty, 2022

The plan for the development of educational programs was developed on the basis of documents: on the national priorities of the Republic of Kazakhstan until 2025 (Decree of the President of the Republic of Kazakhstan dated February 26, 2021 No. 520) <https://adilet.zan.kz/rus/docs/U2100000520>, Development strategies "ABAI UNIVERSITY for 2022-2025" (approved by the Decision of the Board of Directors of NJSC KazNPU named after Abai dated December 09, 2021, order No. 12) https://abaiuniversity.edu.kz/docs/str_rus.pdf

Approved at a meeting of the Council of the Institute of Mathematics, Physics and Informatics

Minutes No. 5 dated "31" "01" 2022

Considered at a meeting of the Department of Physics

Minutes No. 4 dated "27" "12" 2021

Head of the Department  V.N. Kossov

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

FOREWORD

Educational program development plan 6B01504 – Physics for 2022-2025.

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

Code and name of the direction of training: 6B015-Teacher training in natural sciences

Group of educational programs: B015 Physics teacher training

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

Mission educational program: Training of teachers capable of anticipating the needs of modern education, based on advanced methods, national heritage and global approaches.

The purpose of the educational program:

Training of teachers of physics capable of carrying out professional activities in the following areas: education and formation of a comprehensively developed personality of the student; formation of systematized knowledge in the field of physics; organization of the educational process in physics at the modern scientific and methodological level; scientific research

ANALYSIS OF THE CURRENT SITUATION

General information about the educational program

Developers of the EP development plan	<p><u>Head of EP:</u> Kossov Vladimir Nikolaevich</p> <p><u>Employees of the Department of Physics:</u> Bitibaeva Zhazira Maratovna Khamraev Sherpedin Itakhunovich Zheksenbaeva Gulnur Agybaevna</p> <p><u>Experts and employers:</u> Shileev Vyacheslav Georgievich</p> <p><u>Students and graduates:</u> Shakirov Aman Kabdygalieva Laura Abilkyzy Khairat Samad</p>
Academic degree:	Bachelor of Education in Educational Program 6B01504 - Physics
Opening year:	Introduced into ESUVO 2019
Teaching language:	Kazakh, Russian
Form of study:	full-time
Training period:	4
Volume of credits:	240
The uniqueness of the EP	Quality education through interaction with potential employers. Partnership under the academic mobility program.
Graduate Model	<ul style="list-style-type: none"> ✓ <i>Professional and pedagogical and social responsibility</i> ✓ <i>Clarity of goals and value orientations</i> ✓ <i>diligence, self-discipline, speech activity</i> ✓ <i>Emotional intelligence and emotional stability</i> ✓ <i>Practice-oriented and entrepreneurial skills</i> ✓ <i>Respect for historical and cultural heritage, tolerance</i> ✓ <i>Deep understanding of digital environments, new content creation skills</i> ✓ <i>multilingualism</i>

	<ul style="list-style-type: none"> ✓ Ability for constructive interaction, adaptability to global challenges ✓ Ability to be a leader and make independent decisions ✓ Creativity, the ability to be creative and creative social activity ✓ Ability for continuous professional growth and self-development
Types of professional activity	<ol style="list-style-type: none"> 1. Educational (pedagogical): training and development of students, organization of the process of education and upbringing, design and management of the pedagogical process, diagnostics, correction, prediction of the results of pedagogical activity; 2. Educational: designing and managing the educational process of students, performing motivational, diagnostic, corrective, communicative, methodological work in the conditions of using modern pedagogical and information and communication technologies; 3. Educational and technological: study, generalization and dissemination of the experience of innovative education; 4. Socio-pedagogical: creation of favorable conditions and provision of humanitarian and pedagogical support for the full life, education and development of students; 5. Experimental research: conducting scientific research in the chosen direction and in related industries, as well as participation in all stages of design, implementation and maintenance of the results of scientific research; 6. Organizational and managerial: management and organization of the technological process based on physical research methods; 7. Information and communication: effective use of information and communication technologies on a scientific basis for organizing one's own work and self-study.
Academic mobility partners (internal and external)	<p><i>External academic mobility.</i> Pomeranian Academy in Slupsk (Poland); University of Poitiers (France); Lille University (France); University of Lorraine (France); Heidelberg University (Germany); Adam Mickiewicz University (Poland); Mykolas-Romyris University (Lithuania); Vilnius University (Lithuania); University of Vytautas the Great (Lithuania); University of Debrecen (Hungary); NigdeOmerHalisdemirUniversity (Türkiye); MuğlaSıtkı Koçman üniversitesi (Türkiye); Giresun University (Türkiye); Fırat University (Türkiye); Moscow City Pedagogical University (RF); Volgograd State Socio-Pedagogical University (RF).</p> <p><i>Internal academic mobility.</i> Aktobe University named after S. Baisheva; Atyrau University named after Kh. Dosmukhamedov; ARU named after K. Zhubanov; Pavlodar Pedagogical University; Kyzylorda University named after KorkytAta.</p>
Employment of graduates	-
Availability of an application to the license for the direction of personnel training	No. KZ29LAA00018497
The main enterprises with which cooperation is carried out	KSU"Department of Educationcity of Almaty, GU "Department of Education of Almaty region»secondary school No. 26 Almaty region, Ili district, school -gymnasium No. 159 in Almaty., KSU specialized lyceum No. 92 named after Mahatma Gandhi, Almaty, Bostandyk district, etc.
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
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The main risks of the educational program

Name of risk	Possible consequences	Mechanisms and controls
Competition in the market of educational services	Formation public opinion about this EP	Creation of a recognizable image of the educational program, increase in the number of university grants, positive feedback about this EP, trust, interest, activity of the Alumni Association (media appearances), advertising the quality of education ABAI UNIVERSITY to potential employers in order to increase the flow of interesting vacancies for our students and graduates.
Contingent of students	Reducing the contingent of students	implementation of a set of measures aimed at retaining the contingent, introducing more effective forms of career guidance work; systemic interaction with graduates after graduation, an increase in practice-oriented courses in EP
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 competency model, as well as at expanding the possible circle of employers; - In-depth study of disciplines to achieve the required 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 needs of the enterprise; - 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 EPs; - Availability of modern equipment and devices; - Work of graduates in their specialty - Student-oriented education; - 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 Alumni Association 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 initiative topics of research work, within which graduation papers can be performed; -Participation of teaching staff 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; -Sufficiently high level of effectiveness of educational activities, the growth of students' activity. -Development of distance educational technologies. 	<ul style="list-style-type: none"> -High competition in the market of educational services; - Outflow of students; -Pandemic; -Economic crisis; -The general trend of increasing the cost of paid education.
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1. MAIN OBJECTIVES OF THE DEVELOPMENT OF THE EDUCATIONAL PROGRAM

Direction 1. Expansion of access to educational services of the university

No.	Outcome indicators	Unit rev.	2022	2023	2024	2025
1.	The contingent of students in EP 6B01504 - Physics	Unit	253	350	350	360
2.	Admission by EP	Unit	80	90	95	100
3.	Release	Unit	-	96	70	80

Direction 2. Innovative support for educational activities

No.	Outcome indicators (share, percentage, number)	Unit rev.	2022	2023	2024	2025	Responsible executors	Completion Form
1.	Deciding on the type of EP (current, new, innovative, interdisciplinary, additional (minor), joint EP	units	D - 1	D - 1	D - 1	D - 1 SOP-1	graduating department	OP, SOP
2.	Participation of the EP in the ratings of the EP	fact	+	+	+	+	graduating department	OP rating results
3.	EP Accreditation	fact	+			+	graduating department	Result Accreditation
4	Post-accreditation monitoring	fact		+			graduating department	Monitoring results
5.	Updating the EP taking into account the requirements of the labor market	fact	+	+	+	+	graduating department	updated OP, Expert opinion
6.	Analysis of the EP for compliance with the strategic plan for the development of the university	fact	+	+	+	+	graduating department	Department meeting minutes
7.	Conducting round tables on the introduction of competencies in the educational process	fact	+	+	+	+	graduating department, employers	Reference . protocol
8.	The number of specialists involved in the educational process in the relevant industry	people	3	3	4	5	graduating department	Treaties, memorandums
9.	Analysis of the availability of teaching staff with the corresponding 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	Employment results
12.	The share of graduates of the EP, who studied under the state order, were	%	100	100	100	100	graduating department	Employment results

	employed in the first year after graduation from the university under the EP							
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 curricula for management in inclusive education	fact	+	+	+	+	graduating department	report
15	To strengthen the potential of teacher 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 organization work In the project's boundaries "Kids university»	fact	-	+	+	+	graduating department teaching staff	report
18.	Organization work within the "Life-long Learning" for 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 OP
20.	Number of employers involved in assessing the quality of training	units	2	2	5	5	OP's employers	Agreements, memorandums, expert opinions
21.	The share of students participating in the assessment of teaching activities of teaching staff	%	50	50	50	50	graduating department students	Poll results
22	Number of teaching aids developed in the Kazakh language	units	2	4	5	7	graduating department students	Developments by disciplines
23	The number of educational and methodical publications developed by the teaching staff on the specifics of the EP	units	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 the admission of students
25	Preparing graduates for the NCT	fact	+	+	+	+	graduating department	Tubing certificates
26	To develop the digital ecosystem: create - the center of innovative educational digital technologies, which transforms traditional didactic models into innovative ones using digital educational technologies; - an online platform with access to video lectures, electronic interactive multimedia educational materials on the main special courses of educational programs;	fact	-	+	+	+	graduating department	

<ul style="list-style-type: none"> - create author's courses for teaching staff at the leading republican platforms for open online education (EdTech-kz, Open Edx-kz, etc.) and include them in curricula; - gamification (the use of gaming techniques in the educational process, affecting the increase in the involvement and motivation of students); - development of MOOC platforms (massive open online courses); - using a monitoring and evaluation system based on the methods of Open-Book, Open-Paper, Critical Thinking, Take-Home exam; - use of proctoring technology using biometric data of students. 							
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Direction3. Program internationalization

No.	Outcome indicators (share, percentage, number)	Unit rev.	2022	2023	2024	2025	Responsible executors	Completion Form
1.	Interuniversity partnership within the OP: Double Degree Programs	units	-	-	-	1	graduating department	SOP, Double Degree Programs
	with a foreign university	units	-	-	-	1		
	with a Kazakh university	units	-	-	1	1		
2.	The number of EP students participating in the program of internal outgoing academic mobility	units	-	-	1	2	graduating department, academic mobility center	Order, student transcript
3.	The number of EP students participating in the program of internal incoming academic mobility	units	-	-	1	1	graduating department student	Order, student transcript
4.	Number of teaching staff participating in the program of internal outgoing academic mobility	units	-	1	1	1	graduating department teaching staff	Order, report
5.	The number of teaching staff participating in the program of internal incoming academic mobility	units	-	1	1	1	graduating department teaching staff	report
6	Number of attracted foreign scientists	units	-	-	1	1	graduating department	report
7.	The number of teaching staff participating in the program of external outgoing academic mobility	units	-	1	1	1	graduating department teaching staff academic mobility center	report

Direction 4. Expanding the scope of research and innovation

No.	Outcome indicators (share, percentage, quantity)	Unit rev	2022	2023	2024	2025	Responsible executors	Completion Form
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1.	Number of teaching staff involved in educational and research projects	people	1	1	1	2	graduating department	report
2.	Number of teaching staff involved in the implementation of fundamental and applied research	people	1	1	1	2	graduating department	report
3.	The number of publications in publications that are in the 1st, 2nd, and 3rd quartiles according to Clarivate Analytics' Journal Citation Reports or have a Cite Score percentile in the Scopus database	units	1	1	1	2	graduating department	Base indicator
4.	The number of publications of scientific articles by doctoral students in journals with a non-zero impact factor included in the databases Thomson Reuters/Scopus	units	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	magazine collection, Information in the media and links in social networks
6	Round table "The path to science" scientifically-methodical seminar meeting with outstanding chemists-scientists	fact	-	+	-	-	graduating department	Information in the media and links in social networks
7	Number of R&D carried out within the framework of international cooperation	units	-	-	1	1	graduating department	report
8	The number of teaching staff publications in publications recommended by the KKSON	units	3	3	6	8	graduating department	report
9	Number of teachers participating in the Republican competition The best teacher	units	-	1	1	1	graduating department	Competition result
10	Number of student publications	fact	+	+	+	+	graduating department student	report
11	Number of students participating in scientific research and competitions	units	-	1	1	1	graduating department student	report
12	Functioning of scientific centers, laboratories: <ul style="list-style-type: none"> • Laboratory of Organic Synthesis • Laboratory of Physical and Chemical Research Methods • Laboratory of inorganic chemistry • Laboratory of Analytical Chemistry • Chemical Technology Laboratory • Laboratory of petrochemistry and organics 	fact	+	+	+	+	graduating department student	Audit Fund

Direction 5. Improvement of infrastructure and material and technical base

No.	Outcome indicators (share, percentage, number)	Unit rev.	2022	2023	2024	2025	Responsible executors	Completion Form
1	Computer park development	fact	+	+	+	+	graduating department	infrastructure modernization
2	Software purchase	fact	+	+	+	+	graduating department	infrastructure modernization
3	Acquisition 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

Direction6. Career guidance within the EP

No.	Outcome indicators (share, percentage, number)	Unit rev.	2022	2023	2024	2025	Responsible executors	Completion Form
1	Providing presentations to students and teachers of schools on online, offline platforms, handouts with information about this educational program, the list of subjects for passing the UNT, the list of documents required for admission, as well as the university rating, its material and technical base and the possibility of entering ABAI UNIVERSITY	fact	+	+	+	+	graduating department	Report, social media links
2	To identify talented students, the organization of circle work for students in grades 9-10-11 on the basis of practice in accordance with the student's area of interest	fact	-	+	+	+	graduating department, teaching staff, students	Memorandum, agreement
3	Conducting meetings of the department on career guidance and preparing the recruitment of applicants, organizing the work of working groups in key areas.	fact	+	+	+	+	graduating department	Student population report
4	Conducting online lessons with the help of teaching staff, providing methodological assistance in order to support Abay University graduates employed in rural areas	fact	-	+	+	+	graduating department	Report Protocol
5	During the internship, providing methodological support to teachers and students of secondary schools in competitions of scientific projects and olympiads	fact	+	+	+	+	graduating department	Report Protocol
6	Creation of a collection of video lessons in the direction "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 the 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 students of the second year of study at the "Bachelor's" level to create an Honors College (Excellent students of the university, an elite group of the most advanced students)	fact	-	+	+	+	graduating department	Report
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Direction 7. Educational work within the framework of the EP

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