

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

INSTITUTE OF MATHEMATICS, PHYSICS AND INFORMATICS



I APPROVE
Director of the Institute
B.D.Sydykhov
2022 y.

**DEVELOPMENT PLAN
EDUCATIONAL PROGRAMS
6B01507 – Informatics
6B01509 – Informatics and Robotics
8D01507 – Informatics**

For 2022-2025 years

Almaty, 2022

The plan for the development of educational programs 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 of "ABAI UNIVERSITY for 2022-2025" (approved by the Decision of the Board of Directors of NAO KazNPU named after Abaidated 09.12.2021, Order №12) https://abaiuniversity.edu.kz/docs/str_rus.pdf

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

Protocol № 5 from « 31 » 09 2022 y.

Considered at the meeting of the Department of IaIE

Protocol № 6 from « 22 » 09 2022 y

Head of the Chair  N.T.Oshanova

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 6B01507 – Informatics 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: B015 Training of informatics 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: Training of teachers capable of anticipating the needs of modern education, based on advanced techniques, national heritage and world approaches.

The purpose of the educational program:

Training of a professional teacher with modern subject, communicative, digital, entrepreneurial competencies, inclusive education skills, capable of creating high-quality educational content and organizing the educational process

The development **plan** of the educational program 6B01509 – Informatics and robotics for 2022-2025 years.

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: B015 Training of informatics teachers

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The purpose of the educational program:

Training of a professional teacher with modern subject, communicative, digital, entrepreneurial competencies, inclusive education skills, capable of creating high-quality educational content and organizing the educational process

Development **plan** of the educational program 8D01507 – Informatics for 2022-2025

Code and name of the field of education: 8D01 Pedagogical sciences

Code and name of the training area: 8D015-Teacher training in natural science subjects

Group of educational programs: D015 Informatics 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 range of employers.

The mission of the educational program: Training of teachers capable of anticipating the needs of modern education, based on advanced techniques, national heritage and world approaches.

The purpose of the educational program:

Preparation of Doctors of philosophy (PhD) in the field of informatics and informatization of education, possessing professional, pedagogical and scientific competencies in accordance with international requirements, for their implementation in practical and scientific activities in the field of science, education.

ANALYSIS OF THE CURRENT SITUATION

General information about bachelor's and doctoral degree programs

Developers of the educational program development plan	<u>Head of the educational program:</u> Oshanova Nurzhamal Turashovna <u>Employees of the Department of Informatics and Informatization of Education::</u> Abdulkarimova Glyusya Alimovna Kamalova Guldina Bolsheviks on Shekerbekova Shirinkyz Tleubergenovna <u>Experts and employers:</u> ShazhabayevaKulzhanSauytovna <u>Students and graduates:</u> Akzholova Akmaral Mushirbek Alua	<u>Head of the educational program:</u> Oshanova Nurzhamal Turashovna <u>Employees of the Department of Informatics and Informatization of Education::</u> Abdulkarimova Glyusya Alimovna Kamalova Guldina Bolsheviks on Shekerbekova Shirinkyz Tleubergenovna <u>Experts and employers:</u> Shazhabayeva Kulzhan Sauytovna <u>Students and graduates:</u> Akzholova Akmaral MushirbekAlua
Academic degree:	Bachelor of Education in the educational program 6B01507 – Informatics	Doctor (PhD) in the educational program 8D01507–Training of informatics teachers
Year of opening:	2010	2014
Language of training:	kazakh, russian	kazakh, russian
Form of training:	full - time	full - time
Duration of training:	4	3
Volumeof credits:	240	180
The uniqueness of the educational program	Quality education through interaction with potential employers. Partnership for the Academic Mobility program.	Training of highly qualified specialists for successful theoretical, methodological and practical activities in the field of science and

		education.
Graduate Model	<p><i>Professional, pedagogical and social responsibility</i></p> <p><i>Clarity of goals and value orientations</i></p> <p><i>Diligence, self-discipline, speech activity</i></p> <p><i>Emotional intelligence and emotional stability</i></p> <p><i>Practice-oriented and entrepreneurial skills</i></p> <p><i>Respect for historical and cultural heritage, tolerance</i></p> <p><i>Deep understanding of digital environments, skills in creating new content</i></p> <p><i>Multilingualism</i></p> <p><i>Ability to interact constructively, adaptability to global challenges</i></p> <p><i>The ability to be a leader, to make independent decisions</i></p> <p><i>Creativity, the ability to create and creative social activity</i></p> <p><i>Ability to continuous professional growth and self-development</i></p>	<p><i>Generating new knowledge in the form of sound and reliable results of doctoral research</i></p> <p><i>Understands the principles of computer science teaching in educational institutions of higher professional education, has information about the modern methodology of higher school pedagogy, knows the psychological foundations of active teaching methods and educational work at the university, organizational forms and principles of the learning process and pedagogical control</i></p> <p><i>Knows and uses the basic theories, concepts and principles in the chosen field of activity, has the ability to system thinking</i></p> <p><i>Able to demonstrate a comprehensive understanding of the fundamentals of computer science and various research methods used in the verification of scientific theories</i></p> <p><i>Possesses managerial and leadership abilities: critical thinking, creative approach, innovative approach and willingness to make decisions in any life situations</i></p>
Types of professional activity	<p>1. Educational (pedagogical): training and development of students, organization of the learning and upbringing process, design and management of the pedagogical process, diagnostics, correction, forecasting of the results of pedagogical activity;</p> <p>2. Educational: designing and managing the educational process of students, performing motivational, diagnostic, correctional, communicative, methodological work in the conditions of using modern pedagogical and digital technologies;</p> <p>3. Educational and technological: study, generalization and dissemination of the experience of modern innovative education;</p>	<p>1. Training: conducts all types of classes at the university using innovative technologies for the formation of professional competencies of students and researchers</p> <p>2. Educating: shows commitment to the highest social values, to the ideas of humanistic pedagogy; shows familiarity with the system of universal and national values in their unity;</p> <p>3. Methodical: defines individual educational trajectories of students, researchers, taking into account global trends and strategies for the development of higher education</p>

	<p>4. Socio-pedagogical: creating favorable conditions and providing humanitarian and pedagogical support for the full-fledged life, education and development of students;</p> <p>5. Experimental research: conducting scientific research in the chosen direction and in related industries, as well as participation at all stages of design, implementation and maintenance of research results;</p> <p>6. Organizational and managerial: management and organization of the pedagogical process in computer science at the modern scientific level and the implementation of scientific research;</p> <p>7. Information and communication: effective use of digital technologies on a scientific basis for the organization of their own work and self-study.</p>	<p>4. Research: develops new knowledge in the field of computer science, in the field of theory and methods of vocational education;</p> <p>5. Social and communicative: initiates professional interaction with colleagues and foreign partners to improve the practice of education.</p>
Academic Mobility Partners (internal and external)	<p><i>External academic mobility.</i></p> <p>Pomor Academy in Slupsk (Poland); Moscow City Pedagogical University (Russia);</p> <p><i>Internal academic mobility.</i></p> <p>Kazakh National Women's Pedagogical University Aktobe University named after Zhubanova; Atyrau University named after H. Dosmukhamedov; ARU named after K. Zhubanov; Pavlodar Pedagogical University; Kyzylorda University named after KorkytAta.</p>	
Employment of graduates	100%	100%
Availability of an appendix to the license for the direction of training	№ 0137373 of 03.02.10 y	№ 0137373 of 03.02.10 y
The main enterprises with which cooperation is carried out	KSU "Department of Education of Almaty city", GU "Department of Education of Almaty region" secondary school No.26 Almaty region, Ili district, gymnasium No.159 Almaty., KSU specialized lyceum No. 92 named after Mahatma Gandhi, Almaty Bostandyk district, etc.	Kazakh National Women's Pedagogical University Aktobe University named after Zhubanova; Atyrau University named after H. Dosmukhamedov; ARU named after K. Zhubanov; Pavlodar Pedagogical University; Kyzylorda University named after KorkytAta, Institute of Information and Computing Technologies
Expected final results of the	- improving the educational and professional activities of students and	

implementation of the educational program development plan	<p>teaching staff;</p> <p>- advanced training of teaching staff in the field of innovative learning technologies;</p> <p>-development of educational and methodical literature;</p> <p>-development and operation of joint educational programs with domestic and foreign universities</p>
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The main risks of the cluster of educational programs

Наименование риска	Возможные последствия	Механизмы и меры управления
Competition in the educational services market	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 the data of the educational program, trust, interest, activity of the Alumni Association (speeches in the media), advertising the quality of education of ABAI UNIVERSITY to potential employers in order to increase the flow of interesting vacancies for our students and graduates.
Contingent of students	Reducing the number of students	Implementation of a set of measures aimed at maintaining the contingent, the introduction of more effective forms of career guidance; systematic interaction with graduates, increasing practice-oriented courses in the educational program
Economic crisis	Reduced solvency	Provision of the possibility of step-by-step payment of debts, individualization of training, motivation to continue training, individual and group psychological consultations

SWOT analysis of the implementation of a cluster of educational programs

	Strengths	Weaknesses
Internal factors	<ul style="list-style-type: none"> - The goals and strategy of the educational 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 informatics and IT chosen by the student; - Highly qualified teaching staff; - Research activities carried out in accordance with the real demands of science and the labor market; - 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 computer equipment; - The work of graduates in their specialty; - Student-centered learning; - Continuous monitoring and periodic evaluation of educational programs. 	<ul style="list-style-type: none"> - Lack of joint bachelor's degree 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; - Availability of initiative topics of research works, within which graduation works 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; - A sufficiently 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; - 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 of measurement	2022	2023	2024	2025
1.	Contingent of students on EP 6B01507– Informatics	Units	405	420	440	500
2.	Admission according to the EP	Units	60	80	90	100
3.	Release	Units	-	90	50	60

<i>Nº</i>	Performance indicators	Unit of measurement	2022	2023	2024	2025
1.	Contingent of students on EP 6B01509– Informatics and Robotics	Units	253	350	350	360
2.	Admission according to the EP	Units	55	80	90	100
3.	Release	Units	-	50	30	55

<i>Nº</i>	Performance indicators	Unit of measurement	2022	2023	2024	2025
1.	Contingent of students on EP 8D01507– Informatics	Units	5	8	17	28
2.	Admission according to the EP	Units	1	6	10	12
3.	Release	Units	-	2	1	6

Direction 2. Innovative provision of educational activities

<i>Nº</i>	Indicators of results (share, percentage, quantity)	Unit of measure	2022	2023	2024	2025	Responsible performers	Completion Form
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		ment							
1.	Making a decision on the type of educational program (current, new, innovative, interdisciplinary, additional (minor), joint educational program)	Units	Д-1	Д-1	Д-1	Д-1	SOP-1	graduating chair	EP,
2.	Participation of the educational program in the ratings of educational programs	fact	+	+	+	+		graduating chair	Results of the EP rating
3.	Accreditation of the EP	fact		+				graduating chair	Result Accreditation
4	Post-accreditation monitoring	fact		+	+	+		graduating chair	Monitoring results
5.	Updating the educational program taking into account the requirements of the labor market	fact		+	+	+		graduating chair	Updated EP, Expert opinions
6.	Analysis of the educational program for compliance with the strategic development plan of the university	fact		+	+	+		graduating chair	Minutes of chair meetings
7.	Conducting round tables on the implementation of competencies in the educational process	fact		+	+	+		graduating chair, employers	Reference, protocol
8.	The number of specialists involved in the educational process in the relevant industry	pers.	3	3	4	5		graduating chair	Contracts, memoranda
9.	Analysis of the availability of teaching staff with the appropriate potential for the development of the educational program	%	100	100	100	100		graduating chair	Staff form of the faculty of the chair
10.	The number of teaching staff who have completed advanced training courses in the subject area	%	100	100	100	100		graduating chair TS	Сертификаты, дипломы
11.	The share of graduates of educational programs employed in the first year after graduation (from the	%	100	100	100	100		graduating chair	Results employment

	total number of graduates)							
12.	The share of graduates of the educational program who studied under the state order, employed in the first year after graduation from the educational program	%	100	100	100	100	graduating chair	Results employment
13	The proportion of university graduates participating in the assessment of the quality of educational services (full-time education)	fact	+	+	+	+	graduating chair	Presence in the commission
14	Availability of integrated training courses	fact	+	+	+	+	graduating chair	report
15	To strengthen the potential of pedagogical education, the development of new educational programs	fact	-	+	+	+	graduating chair	report
16	Implementation of online courses (MOOCs)	fact	-	+	+	+	graduating chair TS	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 chair TS	report
18.	Organization of work within the framework of "Life-long Learning" for obtaining quality education for everyone and at any age.	fact	-	+	+	+	graduating chair	report
19.	Participation of students in determining the content of the educational program	fact	+	+	+	+	graduating chair, students	As part of the compilers of the EP
20.	The number of employers participating in the assessment of the quality of training specialists	units	2	2	5	5	Employer of the EP	Contracts, memoranda, expert opinions
21.	The proportion of students participating in the assessment of teaching activities of teaching staff	%	50	50	50	50	graduating chair students	Survey results
22	The number of teaching aids developed in the	units	2	4	5	7	graduating	Developments in

	Kazakh language						chair students	disciplines
23	The number of educational and methodical publications developed by the teaching staff according to the specifics of the educational program	units	2	2	2	2	graduating chair	educational and methodical publications, textbooks
24	Opening of pedagogical retraining courses for graduates of non-pedagogical specialties	fact	-	+	+	+	graduating chair	Order on admission of students
25	Preparation of graduates for OSP (NCT)	fact	+	+	+	+	graduating chair	NCT Certificates
26	To develop the digital ecosystem, create: <ul style="list-style-type: none"> - 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; - author's teaching staff courses at the leading republican sites of open online education (EdTech-kz, Open Edx-kz, etc.) and their inclusion in curricula; - gamification (the use of game techniques in the educational process that affect the increase in the involvement and motivation of students); - development of MOOC platforms (massive open online courses); - the use of control and evaluation systems based on the methods of Open Book, Open piece of paper, 	fact	-	+	+	+	graduating chair	

	Critical thinking, Home exam; - using proctoring technology based on biometric data of students.							
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Direction 3. Internationalization of the program

№	Indicators of results (share, percentage, quantity)	Unit of measurement	2022	2023	2024	2025	Ответственные исполнители	Форма завершения
1.	Interuniversity partnership within the framework of the educational program: Two-degree educational programs	units	-	-	-	1	graduating chair	SOP, Two-degree educational programs
	with a foreign university	units	-	1	-	1		
	with a Kazakh university	units	-	-	1	1		
2.	The number of students enrolled in educational programs participating in the program of internal outgoing academic mobility	units	-	-	1	2	graduating chair, academic mobility center	Order, transcript of students
3.	The number of students of educational programs participating in the program of internal incoming academic mobility	units	-	-	1	1	graduating chair student	Order, transcript of students
4.	Number of teaching staff participating in the internal Outgoing Academic mobility program	units	-	1	1	1	graduating chair teaching staff	Order, report
5.	Number of teaching staff participating in the internal Incoming Academic mobility program	units	-	1	1	1	graduating chair teaching staff	report
6	Number of foreign scientists involved	units	-	-	1	1	graduating chair	report
7.	Number of teaching staff participating in the external Outgoing Academic mobility program	units	-	1	1	1	graduating chair teaching staff academic	report

								mobility center	
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Direction 4. Expanding the scope of scientific research and innovation

<i>№</i>	Показатели результатов (доля, процент, количество)	Unit of me asu re me nt	2022	2023	2024	2025	Responsible performers	Completi on Form
1.	Number of teaching staff participating in educational and research projects	per son	1	1	1	2	graduating chair	report
2.	The number of teaching staff involved in the implementation of fundamental and applied research	per son	1	1	1	2	graduating chair	report
3.	The number of publications in the publications included in the 1st, 2nd and 3rd 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 s	1	1	1	2	graduating chair	Base indicator
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 s.	1	1	2	3	graduating chair doctoral students	Database metrics
5	International Scientific and Practical Conference MMiTON	fact	-	+	-	-	graduating chair	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 scientists	fact	-	+	-	-	graduating chair	Information in the media and links in social networks
7	Number of research projects carried out within the framework of international cooperation	units	-	-	1	1	graduating chair	report
8	The number of publications of the teaching staff in publications recommended by the CCSON	units	3	3	6	8	graduating chair	report
9	The number of teachers participating in the Republican contest The best teacher	units	-	1	1	1	graduating chair	The result of the competition
10	Number of student publications	fact	+	+	+	+	graduating chair student	report
11	Number of students taking part in scientific research and competitions	units	-	1	1	1	graduating chair student	report
12	Functioning of the International scientific laboratory of ICT	fact	+	+	+	+	graduating chair student	Classroom Fund

Direction 5. Improvement of infrastructure and material and technical base

No	Indicators of results (share, percentage, quantity)	Unit of measurement	2022	2023	2024	2025	Responsible performers	Completion Form
1	Development of a computer park	fact	+	+	+	+	graduating chair	infrastructure modernization
2	Software acquisition	fact	+	+	+	+	graduating chair	infrastructure modernization

3	Purchase of laboratory equipment, etc.	fact	+	+	+	+	graduating chair	infrastructure modernization	
4	Replenishment of the library fund	fact	+	+	+	+	graduating chair	infrastructure modernization	
5	Purchase of furniture	fact	+	+	+	+	graduating chair	infrastructure modernization	

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

No	Indicators of results (share, percentage, quantity)	Unit of measurement	2022	2023	2024	2025	Responsible performers	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 chair	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 chair, Teaching staff, students	Memorandum, agreement
3	Conducting meetings of the department on career guidance and preparation of a set of applicants,	fact	+	+	+	+	graduating chair	Report on the contingent of students

1	Carrying out activities within the framework of the Programs and according to the plan of educational work of the Institute	fact	+	+	+	+	graduating chair	Report, links in social networks
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 chair	Report, links in social networks
3	Measures to foster integrity and anti-corruption values	fact	+	+	+	+	graduating chair	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 chair , students	Report