



NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

6B01501 – Mathematics

Semey

NPJSC «Shakarim University of Semey»

Approved by
Member of the Board –
Vice-Rector for academic affairs
Indira Oralkhanova
« 7 » 2023 у.



6B01501 «Mathematics»
Educational program development plan
for 2023-2027 years

Semey, 2023

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1. Passport of the educational program development plan 6B01501 - Mathematics

1	The basis for the development	Strategic Plan of Shakarim University for 2021-2025 Faculty work plan
2	Developed by the Academic Committee of the EP	<p>Head of AK: Mukayev Zhandos Toleubekovich EP Manager: Tayboldina Kalamkas Radylkhanovna AK members: Ospanova Dinara Manapovna Zholymbayev Oraltai Muratkanovich Aitimova Umitzhan Nauryzbaevna Bazhenova Gulzhanat Tleulinovna Hafiz Zharas Madeniyatova Zhuldyz Employer: Toktubayeva Gulfariza Temirbayevna</p>
3	Terms of implementation	2023-2027
4	Expected results of implementation	<p>Apply fundamental knowledge of modern mathematics in solving practical problems in various fields of human activity. Interpret the results obtained, build hypotheses about the further course of solving the problem.</p> <p>Analyze and solve problems of the theoretical and methodological course of higher mathematics, demonstrate basic knowledge in the field of pedagogy when conducting classes in a modern school using various techniques and techniques.</p> <p>To design models for the construction of mathematical education, principles, methods and technologies of teaching mathematics. To carry out intrasubject and intersubject connections in the educational process, argues logical reasoning, make your own and find new opportunities, explain mathematical knowledge in various forms.</p> <p>Conduct experiments in the field of classical branches of mathematics, describe methods of mathematical reasoning, apply mathematical terms, comprehensively solving typical problems. To design the solution of mathematical problems, to create algorithms of educational work, to formulate proofs competently.</p> <p>Master the methodology of solving competitive problems, identify hidden assumptions, formulate and analyze emerging problems using statistical or applied mathematical methods.</p> <p>Demonstrate the desire for professional self-improvement, work in a team, make</p>

	<p>decisions, show leadership qualities. Evaluate the work of colleagues, make judgments on the topic under consideration, draw conclusions from the materials studied.</p> <p>Apply information and communication technologies in their teaching activities in accordance with the educational program.</p> <p>Use additional skills and competencies in professional and daily activities.</p>
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2 Analytical justification of the EP

2.1 Information about the educational program

The educational program has been developed in accordance with the National Qualifications Framework and Professional Standards, according to the Dublin Descriptors and the European Qualifications Framework. The typical period of mastering the bachelor's degree program is 4 years.

In total, 82 disciplines are offered for the study of the EP. Required to study - 25 disciplines (including OOD – 13, university components: basic discipline (DB) – 11, profile discipline (PD) - 1), elective components: BP - 36, PD – 21. As well as practice – 5.

EP "6B01501 - Mathematics" was developed by the Academic Committee

Reviewed at the meeting of the Commission for Quality Assurance of the Faculty of Natural Sciences and Mathematics

(Protocol No. 4/1 of 4.04.2023)

Approved at the meeting of the Academic Council of the University (Protocol No. 8 of 25.04.2023).

Purpose of the EP: Preparation of highly competitive specialist of modern formation, possessing multiculturalism, communication, capable of creative and professional problem solving at a high pedagogical and scientific and practical level, prepared for work by teachers of mathematics

The main criterion for the completion of the educational process is the development of at least 240 credits, with the award of a bachelor's degree.

2.2 Information about students

The basis of training	Academic year	2023-2024	2024-2025	2025-2026	2026-2027
	Grant		76	81	85
Contract		22	22	25	25
Total		98	103	110	115

The minimum score for admission to EP "6B01501 - Mathematics" is 75 points.

2.3 Internal and external conditions of EP development

Graduates of the EP, in addition to the schools of the region, are in great demand at the level of the region, the Republic.

In order to improve the quality, the range of practice bases has also been expanded, an agreement has been concluded with schools: №3, 32, 39, 27, 7, 16, 30, №47, 49, 23, 25, NIS FMB Semey. Next year, it is planned to conclude contracts with the schools of the districts.

Among the students of EP 6B01501-mathematics, the program of internal and external academic mobility has free application. For example, VKU named after S. Amanzholov, Zhetysu University named after I. Zhansugurov. According to the program of external academic mobility, students of the OP have the opportunity to study at the university. Jan Amos Komensky (Leszno, Poland), University of Economics (Bydgoszcz, Poland).

Constant replenishment of the library's book fund.

2.4 Information about teaching staff implementing the educational program

№	Indicators	Units	2023-2024	2024-2025	2025-2026	2026-2027
1	The share of teaching staff with a degree in EP	%	50	51	52	53
2	Including the share of teaching staff with a degree in the general disciplines cycle	%	56	58	59	60

2.5 Characteristics of the achievement of the EP

Identify the holders of the Presidential Scholarship among the students of the EP.

Referral of students under the program of external academic mobility to study at universities of the near and far abroad. Referral of students under the internal academic mobility program to study at universities preparing EP 6P01501-mathematics.

Taking into account the opinion of employers, making additions to the EP for the new academic year.

Participation of students and teaching staff in Start-Up projects, scientific research works. Participation in the regional, Republican, international Olympiad in the specialty.

Equipping classrooms with modern equipment.

Increase the number of scientific papers Web of the Science and Scopus.

Participation in the National ranking of EP universities of the Republic of Kazakhstan.

Increasing the number of branches of the department, in order to improve the quality of the EP, as well as to communicate with schools and expand the base of professional practice,.

Development and implementation of a plan for the preparation of textbooks, manuals, methodological guidelines and electronic textbooks on the EP

3. The main objectives of the EP development plan

Preparation of a highly professional competitive specialist in accordance with modern requirements, prepared for the work of mathematics teachers in secondary schools, gymnasiums, lyceums, colleges, as well as capable of creatively and professionally solving problems at a high scientific

and practical level, possessing general cultural and professional competencies in the field of modern pedagogy.

The main criterion for the completion of the educational process "teacher of mathematics" is the development of 203 credits of theoretical training, as well as 27 credits of practical training (other types of educational / scientific work), 8 credits for preparing or passing a comprehensive exam, preparing, writing and defending a thesis (project). A total of 240 credits.

4. EP riskanalysis

№	Name of risks	Measures to eliminate
1	Reduction of the contingent of students in the EP	Holding an open day, strengthening career guidance work in Semey and the surrounding areas of the region
2	Insufficient level of language knowledge for the introduction of trilingual education	Conducting specialized courses, training seminars
3	Decrease in the level of employment	Close cooperation with employers in the region, improvement of educational programs at the request of employers
4	Insufficient development of external and internal academic mobility of students and teaching staff	Close interaction with partner universities, explanatory work with students and teachers
5	The risk of a decrease in the settlement of Teaching staff by EP	Stimulating teaching staff to improve professional training, using the opportunities of a targeted PhD doctoral program

5. Action plan for the development of the EP

№	Criteria	Expected results	Units	2023-2024	2024-2025	2025-2026	2026-2027
Direction 1. Educational and methodological support							
1.1	Updating the educational program based on professional standards, taking into account the recommendations of employers	Conducting an examination of the Educational program "6B01501-mathematics" in order to improve the practice orientation and development of professional competencies of graduates	fact	+	+	+	+

1.2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies, the demands of the labor market	Improving the quality of the content of educational programs by including elective courses aimed at developing the key and professional competencies of graduates in accordance with the demands of the labor market.	fact	+	+	+	+
1.3	Introduction of modern technologies into the educational process that contribute to the development of cognitive activity, communicative ability of students	Improving the quality of teaching academic disciplines, taking into account the novelty and diversity of forms of work that contribute to the development of cognitive activity.	fact	+	+	+	+
1.3.1	Introduction of mass open online courses (MOOCs) in the educational process according to the educational program "6B01501-mathematics"	Introduction of disciplines into the educational process Improving the quality of teaching academic disciplines, taking into account the novelty and diversity of forms of work that contribute to the development of cognitive activity.	unit	1	1	1	1
1.4	Involvement of social partners and employers in the development, examination of the implementation of educational programs	Improving the quality of implemented educational programs taking into account market demands and recommendations of employers	unit.	1	2	2	3
1.5	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	unit.	-	-	-	-
1.6	Conducting seminars and round tables on the application of innovative technologies in the educational process	Introduction of innovative technologies in the educational process	unit.	2	3	3	4
1.7	Publication of educational, methodical and scientific literature on the implemented EP	Improvement of educational and methodological support in the disciplines of the implemented educational programs	unit.	2	2	3	3
1.8	Conclusion of contracts with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a database of foreign and domestic partner universities for the development of academic exchange of students of all levels and teaching staff	unit.	1	1	1	1
1.9	Inviting students from partner universities to study for a semester, short-term internships, internships, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	p.	1	1	1	1

1.10	Participation of teaching staff and students in international programs academic exchange	Development of international cooperation with foreign universities implementing educational programs in the direction B009 – Teacher training in mathematics	p.	1	1	1	1
1.11	Development of outgoing academic mobility of teaching staff and students in the direction B009 – Teacher training in mathematics	Improvement of the educational program based on the use of the experience of implementing such programs in the leading universities of the Republic of Kazakhstan	p.	-	1	1	1
Direction 2. Teachings taff							
2.1	Professional development and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years	The share of teaching staff who have passed advanced training at the national level is at least 20%	p.	4	5	5	6
2.2	Advanced training, retraining, internships of teaching staff at the international level	Completion of at least 2 teachers of the advanced training program, retraining, internships of teaching staff at the international level	p.	2	2	2	2
2.3	Promotion of publications of the works of teaching staff in international publications indexed by the Web of Science and Scopus databases	Increase in the share of teaching staff who have published the results of scientific research in publications indexed by the Web of Science and Scopus databases – at least 30% of the total number of teaching staff	%	7	10	12	15
2.4	Involvement of practical specialists in teaching and scientific activities	Participation in the implementation of educational programs of practitioners (at least 20% of specialists)	%	20	21	22	23
Direction 3. Internationalization of educational programs							
3.1	Conclusion of agreements on international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships of students	unit	1	1	1	1
3.2	Attracting foreign students to study under the educational program 6B01507 "Computer Science and Robotics"	Increasing the number of foreign students	p.	-	-	-	-
3.3	Organization of joint scientific and practical events with international partners	Improving the efficiency of scientific and methodological activities of teaching staff, exchange of experience with foreign partners	unit	1	1	1	1

Direction 4. Logistics and digitalization

4.1	Step-by-step equipping of classrooms with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.)	Equipping classrooms assigned to the department with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.)	unit	1	1	2	2
4.2	Carrying out the automation of the educational process (testing, session management, student contingent movement, dean's office, department, teaching staff workload, schedule, library, syllabuses)	Information management based on the automation of the educational process (testing, session management, student body movement, dean's office, department, teaching staff workload, schedule, library, syllabuses)	fact	+	+	+	+
4.3	Replenishment of the full-text database of the results of scientific research of teaching staff and students, teaching staff (articles, monographs, etc.)	An increase in the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs, etc.)	unit	24	28	31	32
4.4	Expansion of the fund of scientific and educational literature, including on electronic media on ongoing educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	%	50	50	60	65
4.5	Monitoring the filling and improvement of the faculty website	Formation of the website of the faculty on various aspects of the implementation of educational programs	%	50	60	65	70

Head of the department



Dinara Ospanova

Reviewed

at a meeting of the Commission on Quality Assurance
of the faculty of Natural Sciences and Mathematics
Protocol No 6 of 06.06.2023

Chairman of the CQA  Zheldybayeva Balgyn

Agreed

Dean of the faculty  Zhandos Mukayev
06.06.2023

