



NJSC SHAKARIM UNIVERSITY OF SEMEY

# **DEVELOPMENT PLAN EDUCATIONAL PROGRAM**

6B05201 - Ecology

Semey

NON-PROFIT JOINT STOCK COMPANY «SHAKARIM UNIVERSITY OF SEMEY»

**APPROVED**

Board Member – Vice-Rector for Academic Affairs

I. Oralkanova



*[Signature]*  
«*15*» *05* 2023

**EDUCATIONAL PROGRAM DEVELOPMENT PLAN**

6B05201 «Ecology»

(EP code and name)

**for 2023 - 2027**

Semey 2023

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### 1. Passport of the Development Plan of the Bachelor's degree 6B05201 «Ecology»

1	The basis for the development	Strategic Plan of Shakarim University for 2023-2027 Work plan of the Faculty of Engineering and Technology Strategic development plan of the Department «Chemical Technology and Ecology»
2	Terms of implementation	2023-2027 years
3	Expected results of implementation	Training of highly qualified ecologists with knowledge in the field of environmental protection, professionally proficient in practical methods of modern environmental research, ensuring rational use of natural resources and environmental safety, meeting the needs of the regional and republican labor market for qualified and competitive specialists who know technologies and modern languages, creative and critically thinking business leaders, competitive in the world market.

## 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.

EP 6B05201 "Ecology" was developed by the Academic Committee of the educational program 6B05201 "Ecology" in the direction of training 6B052 - Environment

Reviewed at a meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology and approved at a meeting of the Academic Council of the University

The main criterion for the completion of the educational process is the development of at least 240 credits, with the award of a Bachelor of Science degree in the educational program "6B05201 Ecology".

The difference and uniqueness of EP 6B05201 "Ecology" is that there is a good material and technical base that meets modern requirements.

These are the presence of specialized classrooms, the presence of highly qualified scientific and pedagogical staff, the presence of representatives of large industrial enterprises in the teaching staff, the presence of training trajectories in demand in the labor market and affordable tuition.

### 2.2 Information about students

Academic year The basis of training	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
Grant	17	18	18	18
Contract	-	-	3	4
Total	17	18	21	22

### 2.3 Internal and external conditions for the development of EP

For the preparation of bachelors, the department has modern educational and laboratory rooms, technical training facilities, visual and demonstration materials. The department has an educational and methodological complex for all disciplines taught in Kazakh and Russian, a fund of cases, business games and software. To achieve the goals and objectives of training qualified

personnel according to the EP "6B05201 – Ecology" uses various types of technical resources such as interactive whiteboards, projectors and modern computers, the use of software (AGNS-Ecologist 1.2, Video Converter, Quizlet, Letstest, Kahoot, Loneti), high-speed access to Internet resources, a library with materials on paper and electronic media, access to international abstract databases Scopus and Web of science data, contributing to the intensification of the educational process and the conduct of the educational process and scientific research.

All resources are available to students, including remote technology using the portal <https://ais.semgu.kz/>.

The Department of Chemical Technology and Ecology has its own page on the university's website on the INTERNET ([www.shakarim.edu.kz](http://www.shakarim.edu.kz)), pages on social networks such as Facebook (<https://www.facebook.com/profile.php?id=100066662942606>) and Instagram (<https://instagram.com/kafximtexeco?igshid=YmMyMTA2M2Y>). The same content is published in all social networks.

Special attention is paid to the professional development of teachers by taking advanced training courses and scientific internships in domestic universities, enterprises and organizations, as well as by inviting leading specialists in the profile, scientists from higher educational institutions of the near abroad.

The implementation of academic mobility is carried out with such universities as: S. Amanzholov East Kazakhstan University (Ust-Kamenogorsk), D. Serikbayev East Kazakhstan Technical University (Ust-Kamenogorsk), NP JSC Toraigyrov University (Pavlodar), Altai State University (Barnaul, Russia). The lectures were attended by scientists from abroad: Doctor of the Russian Academy of Sciences, Professor of the University of Helsinki Vladimir Aseev (Helsinki, Finland), Professor of the Shchechın University Tomasz Zalewski (Helsinki, Finland), Professor of the University of Mugla Sytki Kochman Ramazan Mammadov (Mugla, Turkey), Professor of the University of Pannonia Tibor Kovacs (Veszprem, Hungary). Following the results of the work, certificates were awarded to the teaching staff and students who participated in trainings and lectures.

To implement the EP, professional practice is organized and conducted at industrial enterprises, state organizations and structures, companies and firms of various forms of ownership, according to the conclusion of Memoranda of Cooperation for a period of 5 years.

The professional practice of students is an important part of the training of highly qualified specialists and is aimed at consolidating theoretical knowledge gained during university studies, acquiring practical skills and competencies, as well as mastering advanced professional experience in the specialty being taught and experience in organizational work.

Issues of vocational training, professional practice and employment of graduates are solved at the department with the mandatory participation of employers. Seminars are held annually at the department, which are attended by managers and representatives of commercial structures, enterprises, government agencies.

The department organizes meetings with graduates-employers, practitioners, seminars with company representatives, joint meetings of the department are held. Employers periodically review the educational trajectories of students' training in order to include new subjects in the curriculum, providing for the formation of competencies that are significant for future work.

The organization of the educational process with the introduction of elements of dual training is carried out in accordance with the contract with LLP "PC Cement Plant Semey". The elements of the dual training system are also reflected in the schedule of training sessions.

An important indicator of the effectiveness of the educational program is the proportion of employed graduates. The dynamics of the share of employed in recent years has been, respectively, by year: in the 2020 - 2021 academic year -85%, in the 2021-2022 academic year-87%, in the 2022-2023 academic year-87%. These indicators indicate a general increase in demand for these educational programs in the labor market, and this is also the result of close interaction with employers.

#### **2.4 Information about teaching staff implementing the educational program**

<b>№</b>	<b>Indicators</b>	<b>units of measurement</b>	<b>2023-2024 academic year</b>	<b>2024-2025 academic year</b>	<b>2025-2026 academic year</b>	<b>2026-2027 academic year</b>
1	The share of teaching staff with an academic degree in EP	%	73	76	80	82
2	Including the share of teaching staff with a degree in the general education disciplines cycle	%	7	7	8	8

#### **2.5 Characteristics of the achievements of the EP**

The main indicator of the relevance and relevance of educational programs is the professional practices of students, which are conducted according to the approved end-to-end program of practices and generally meet the qualification requirements for training specialists of this profile.

According to the EP "6B05201 – Ecology", there are contracts for the internship of students concluded with various companies and organizations

The cipher and the name of the educational program	Practice bases	Term of the contract
EP "6B05201 – Ecology"	RSE "National Nuclear Center of the Republic of Kazakhstan of the Ministry of Energy of the RK" Kurchatov city	10.08.2022 - 10.08.2027г., №331
	JSC "Caustic" Pavlodar city	01.11.2022 - 31.12.2027г., №242-22/7
	LLP "QAZAQ ASTYQ QROUP" Semey	27.01.2022 - 27.01.2027г., №210
	Semipalatinsk Oil Plant LLP Semey	15.06.2022 – 31.12.2025, No.21
	Republican State Administration "Department of Ecology for East Kazakhstan Region Committee for Environmental Regulation and Control of the Ministry of Ecology and Natural Resources". Semey	20.10.2021 - 20.10.2024г., №160
	Kazzinc LLP Ust-Kamenogorsk	03.01.2019 - 31.12.2023г., №50-1- /2019-00006
	JSC "Aluminum of Kazakhstan" Pavlodar	25.10.2019 - 30.09.2023г., № PD/AOK/23-0134
	Semey construction materials LLP, Semey	05.04.2021г. – 31.12.2023г., №2214
	MSI "Ridder Forestry of the Department of Natural Resources and Rational Nature Management of East Kazakhstan Region"	15.06.2022-15.06.2027 г., №211
	JSC "Semey Engineering"	



According to the relevance and effectiveness of educational programs, their compliance with modern trends in education is the academic mobility of students and teaching staff. The University carries out activities on academic mobility according to the Concept of academic mobility of students of higher educational institutions of the Republic of Kazakhstan.

As part of academic mobility, students have the opportunity to travel for theoretical and practical training.

Students of the EP "6B05201-Ecology" are winners of the Republican contests of the Research and Development, the republican Olympiad, actively participate in international scientific and practical conferences, Olympiads, competitions.

### 3. The main objectives of the EP development plan

The formulated goals and objectives of the educational program correspond to the needs of the labor market of the region and the country, as well as the conceptual model of the graduate of the specialty "Ecology".

The educational program of EP 6B05201 – Ecology is focused on the training of highly qualified ecologists with knowledge in the field of environmental protection, professionally proficient in practical methods of environmental research, ensuring rational use of natural resources and environmental safety, meeting the needs of the regional and republican labor market in qualified and competitive specialists.

№	Main tasks	Deadlines for implementation	Events
1	Improvement and improvement of conditions for obtaining a full-fledged, high-quality professional education	The entire training period	Development of measures to improve educational services and develop professional skills with the involvement of social partners and employers in the development and implementation of educational programs, the involvement of professional associations in assessing the qualifications of graduates
2	Creation of a new educational program adapted to modern conditions, taking into account new achievements in science, the educational system, the socio-public sphere with the involvement of employers in the process of improving the	The entire training period	Annual updating of the content of the EP based on the recommendations of employers, the demands of the labor market and an increase in the share of the dual training system to 3-4 disciplines at leading industrial

	Educational program		enterprises
3	Graduation of competitive personnel with knowledge of a professional foreign language and development of international academic mobility of students and teachers	The entire training period	An increase in the proportion of students studying at least one semester in foreign universities in a foreign language, the study of a foreign language by the teaching staff of the department and participation in international competitions for language and scientific internships of teaching staff abroad under the programs "Bolashak", "Erasmus+"
4	Development of measures for mastering work with scientific and technical information when using domestic and foreign experience in professional activities	The entire training period	Carrying out activities for the analysis and processing of the results obtained
5	Activation of scientific work at the department by attracting teaching staff, students to initiative, state-funded research and publication of scientific results in journals with a high impact factor.	The entire training period	Successful implementation of scientific works and the growth of publications of teaching staff in journals with a high impact factor.

#### 4. Risk analysis of EP

The successful implementation of the educational program 6B05201 – Ecology can be influenced by different types of risks, and as a result, the graduating Department of Chemical Technology and Ecology has developed certain measures to reduce them.

No	Name of risks	Measures to eliminate
1	Decrease in the number of students enrolled in the Educational Program	Activation of work on the attractiveness of EP 6B05201 - Ecology in order to attract a new contingent of students on the basis of attracting grants and scholarships to students Career guidance work with in urban and inter-district schools of

		the Abai region with the involvement of students Providing open access on social networks about the achievements of students on EP 6B05201 - Ecology
2	Insufficient level of language knowledge for the introduction of trilingual education	Organization of free English and Turkish language courses among students of 1-3 courses. Taking educational courses on the Coursera platform among students of 2-3 courses in the state and Russian languages in order to gain new knowledge on the basis of the largest universities in the World.
3	Decrease in the level of employment	An increase in the number of graduates with knowledge of a foreign language, which will increase the share of employment, the formation of a base of social partners, monitoring the employment of graduates, labor market analysis
4	Insufficient development of external and internal academic mobility of students and teaching staff	Organization of academic mobility of teaching staff of the department on the basis of the Department of Ecology and Geography of the NP JSC "EKU n.a. S. Amanzholov", NP JSC "EKTU n.a. D.Serikbayev", FSBEI "Altai State University" (Barnaul, Russia).
5	The risk of reducing the settling down of the Teaching staff by EP	Defense of the doctoral dissertation of senior lecturer Mursalimova A.K. at Al-Farabi Kazakh National University in 2023, obtaining a PhD degree

### 5. Action plan for the development of the educational program

№	Criteria	Expected results	units of measurement	2023-	2024	2024-	2025	2025-	2026	2026-	2027
<b>Direction 1. Educational and methodological support</b>											


1.1	Updating the educational program based on professional standards, taking into account the recommendations of employers	Conducting an examination of the Educational program 6B05201 "Ecology" in order to increase the practice orientation and development of professional competencies of graduates	fact.	fact.	fact.	fact.	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 key and professional competencies of graduates in accordance with the demands of the labor market.	fact.	fact.	fact.	fact.	fact.
1.3	Introduction of modern learning technologies into the educational process, contributing to the development of cognitive activity, communicative ability of students	Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity.	fact.	fact.	fact.	fact.	fact.
1.3.1	Introduction of mass open online courses (MOOCs) into the educational process according to the educational program 6B05201 «Ecology»	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 educational programs implemented taking into account market demands and recommendations of employers	unit	3	3	3	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	2	2	2
1.7	Publication of educational, methodical and scientific literature on the implemented educational program	Improvement of educational and methodological support in the disciplines of the implemented educational programs	unit	2	2	2	2
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 higher education institutions partner educational institutions 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 and others	Development of international recognition of educational programs, implementation of academic mobility programs for students	number of people	1	1	1	1
1.10	Participation of teaching staff and students in international academic exchange programs	Development of international cooperation with foreign universities implementing educational programs in the field of Ecology	number of people	-	-	-	-
1.11	Development of outgoing academic mobility of teaching staff and students in the direction of "Ecology"	Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities	number of people	1	1	1	1
<b>Direction 2. Teaching staff</b>							

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 and international level is at least 20%	number of people	2	2	2	2
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	number of people	1	1	1	1
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	%	10	10	10	10
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)	%	10	10	10	10
<b>Direction 3. Internationalization of educational programs</b>							
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
3.2	Attracting foreign students to study under the educational program 6B05201 «Ecology»	Increasing the number of foreign students	number of people	-	-	-	-

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
3.4	Invitation of foreign specialists to give lectures and consultations on master's projects and dissertations	Improvement of the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs	unit	-	-	-	-
3.5	Expansion of cooperation with Leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	unit	-	-	-	-
<b>Direction 4. Logistics and digitalization</b>							
4.1	Step-by-step equipment 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	2	2	2	2
4.2	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.	fact.	fact.	fact.	fact.

4.3	Replenishment of the full-text database of research results of teaching staff and students, teaching staff (articles, monographs and others)	Increase in the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs and others)	unit	1	1	1	1
4.4	Expansion of the fund of scientific and educational literature, including on electronic media for implemented educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	unit	1	1	1	1
4.5	Monitoring the content and improvement of the faculty's website	Formation of the faculty's website on various aspects of the implementation of educational programs.	%	85	90	90	95

Head of the Department Chemical technology and ecology  Sabitova A.N.


**REVIEWED**

at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology

Protocol of the meeting No. 5 dated 05/25/2023

Chairman  Abdilova G.B.

**AGREED**

Dean of the Faculty  Nurymkhan G.N.

«25» May 2023