



NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

7M05101 - Biology

Semey

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

APPROVED

Board member - Vice-rector for academic affairs

I. Oralkanova



« 05 » 2023

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

7M05101 - «Biology»

2023-2025

Semey 2023

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1. Passport of the Development Plan of the Bachelor's EP 7M05101- Biology

1	Basis for development	Shakarim University Strategic Plan for 2021-2025. Faculty work plan
2	Developed by the Academic Committee of the EP	<p><i>Head of AK:</i> Nurymkhan G.N., Dean of the Faculty of Engineering and Technology, associate professor</p> <p><i>EP Manager:</i> Mirasheva G.O., candidate of technical sciences; assoc. Professor;</p> <p><i>AK members:</i> Kalibekkyzy Zh., Ph.D., Member of the Board, Vice-Rector for Science and Innovation</p> <p>Kakimova Zh.Kh., head of the department, candidate of technical sciences; assoc. Professor;</p> <p><i>Employer:</i> Voshchakina D.N., head of the biological department of the regional children's biological center Zharykbasova K.S., vice-rector for educational and methodological work Alikhan Bokeikhan University, Doctor of Technical Sciences</p> <p><i>Master's student:</i> Tylgatbekova A.S., master's student of the MBL-201.1 group Otylnbaeva M.K., master's student of the MBL-101 group</p>
3	Implementation deadlines	2023-2025
4	Expected results of implementation	Preparation of masters with fundamental and applied knowledge in the field of biological sciences, research skills for carrying out scientific research, professional and practical, organizational, managerial and pedagogical activities

2. Analytical justification for the EP

2.1 Information about the educational program

Educational program 7M05101 - «Biology», implemented by the Shakarim University of Semey, Faculty of Engineering and Technology, Department of «Food Production Technology and Biotechnology» in the group of educational programs M082 - «Biotechnology» - was developed taking into account the needs of the regional labor market.

EP 7M05101 – « Biology » was developed by the Academic Committee.

Considered at a meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology (Protocol № 4/6 of April 10, 2023)

Approved at a meeting of the University Academic Council (Protocol № 8 of April 25, 2023)

The educational program is implemented on the basis of fundamental documents:

1. License to conduct educational activities KZ38LAA00018432 dated June 25, 2020, order № 274 dated June 25, 2020.
2. State mandatory standard for higher and postgraduate education dated July 20, 2022 № 2.

The direction of training is scientific and pedagogical.

The main criterion for the completion of the educational process is the completion of at least 120 credits, with the award of a Master of Science degree in the educational program 7M05101 «Biology».

The goal of the educational program is to prepare masters with fundamental and applied knowledge in the field of biological sciences, research skills for carrying out scientific research, professional and practical, organizational, managerial and pedagogical activities.

The uniqueness of the program lies in the opportunity for students to participate in scientific programs, start-up projects, and realize their creative potential through scientific research, creative projects, and sporting events.

2.2 Information about students

Academic year	2023-2024 academic year	2024-2025 academic year
Basics of training		
Grant	2	3

Contract	0	0
Total	2	3

2.3 Internal and external conditions for the development of educational programs

For the development and implementation of the educational program 7M05101 - Biology, the department has created favorable and optimal conditions such as:

- highly qualified teaching staff;
- high material and technical equipment of the EP;
- close cooperation with employers;
- modern educational and methodological base, with students' access to information and analytical resources of the world scientific world;
- use of modern and interactive technical teaching aids;
- academic mobility (external and internal);
- high-quality professional infrastructure (educational resources);
- for conducting laboratory and practical classes there are training laboratories equipped with special equipment and materials.
- The provision of educational programs with educational and methodological complexes of disciplines is 100%.
- The teaching staff of the department have personal computers and free access to the Internet.

The presence of high-quality professional infrastructure (educational resources) necessary for the implementation of EP is a guarantee of the training of highly qualified specialists of modern times.

Based on the agreement on the creation of a branch of the department on the basis of the Northern Branch of the Kazakh Research Institute of Processing and Food Industry LLP, a branch of the department operates.

The implementation of academic mobility of students and teaching staff, scientific internships for students is carried out with such universities of the Republic of Kazakhstan as: NJSC «Toraigyrov University», NJSC «Kokshetau University named after Sh. Ualikhanov», NJSC «Kazakh Agricultural Technical University named after. S. Seifullina».

With external partners such as: Federal Altai Scientific Center of Agrobiotechnology, department of the Siberian Research Institute of Cheese Making, Barnaul, Kemerovo State University, Kemerovo, Novosibirsk State Agrarian University, Novosibirsk.

One of the department's objectives is to develop a joint educational program with leading universities, the implementation of which is aimed at integration into the international scientific space through academic exchange of teachers and students, as well as obtaining two diplomas.

Thus, in 2024, on the basis of a memorandum concluded with the Northwestern University of Agriculture and Forestry (Xianyang, People's Republic of China), it is planned to implement a double-degree education and an academic mobility program for students and teaching staff in EP 7M05101- Biology.

2.4 Information about teaching staff implementing the educational program

№	Indicators	Units of measurement	2023-2024 academic year	2024-2025 academic year
1	Share of teaching staff with an academic degree in EP	%	100	100
2	Including the share of teaching staff with an academic degree in the cycle of general education disciplines	%	100	100

Involving practitioners in the educational process allows you to integrate theory with practice and helps graduates quickly adapt to the professional environment.

Among the part-time workers there is 1 person from among the managers and employees of organizations whose activities are related to the focus of the implemented program 7M05101-Biology - PhD-doctor, director of the SF of the Kazakh Research Institute of Processing and Food Industry Suychinov A.K.

The teaching staff of the department has the opportunity to improve their skills in leading research centers of the Republic of Kazakhstan and beyond.

The teaching staff publishes scientific articles not only in industry journals of the Republic of Kazakhstan, but also in journals and impact factors included in the Web of Science and Scopus databases.

All teachers have basic education in their specialty.

In general, the personnel potential of the department allows us to properly ensure the training of specialists in accordance with the requirements.

2.5 Characteristics of the achievements of the EP

The achievements of EP 7M05101-«Biology» include the training of scientific and pedagogical personnel and the implementation of:

1. Scientific projects for grant funding by the Ministry of Science and Higher Education of the Republic of Kazakhstan RK on the topic: «Development of a biosensor for the determination of highly cumulative xenobiotics in milk and dairy products based on regional monitoring of food safety». Scientific supervisor, Doctor of Technical Sciences, Professor Kakimov A.K.
2. A joint project under the Targeted Financing Program with «Kazakh research institute of processing and food industry» LLP on the topic «Development of resource-saving technology for processing secondary raw materials of cattle and poultry in the production of functional meat products». Performed by Doctor of Technical Sciences, Professor Kakimov A.K.
3. Postdoctoral grant from Jumazhanova M.M. AP14973033 «Development of technology for drinking yoghurt with encapsulated probiotic cultures». Scientific supervisor, candidate of technical sciences, associate professor Kakimova Zh.Kh.

The achievements of the EP also include the functioning, on the basis of an agreement on the creation of a branch of the department on the basis of the Semey Branch of the «Kazakh research institute of processing and food industry» LLP, a branch of the department.

Conclusion of a memorandum with the Northwestern University of Agriculture and Forestry (Xianyang, People's Republic of China), academic mobility programs for students and teaching staff are planned for EP 7M05101-Biology.

3. Main objectives of the EP development plan

The goals and objectives of the educational program are formulated taking into account the requirements and requests of potential consumers, and based on an assessment of the demand for the educational program, which are determined by the interests of potential employers, applicants, the potential of the university, the requirements of the state and society as a whole. The educational program 7M05101-Biology is focused on training scientific, scientific and pedagogical personnel of a new formation, capable of solving modern problems of science and production caused by the needs of the state and market, scientific

and practical activities of the university, as well as developing breakthrough technologies and developing the competitiveness of graduates in this specialization.

The main objectives of the development plan for EP 7M05101-Biology:

1. Training of in-demand personnel that meets the demands of the internal and external labor market.
2. Interaction between the university and employers to assess the competencies of university graduates and satisfaction with the quality of graduates' training
3. Graduate of competitive specialists with knowledge of a professional foreign language
4. Increasing the research potential of EP 7M05101-Biology

4. Risk Analysis of the Educational Program

№	Name of risks	Corrective measures
1	Decrease in the number of students enrolled in the EP	Development of a comprehensive plan for career guidance for university undergraduate students. Attracting a contingent of students on a paid-contractual basis
2	Insufficient level of language knowledge to introduce trilingual education	Strengthening the language training of students and teaching staff through mandatory attendance at foreign language courses created both at the university and outside it
3	Insufficient development of external and internal academic mobility of students and teaching staff	Intensify work with foreign universities for the exchange of students and teaching staff on academic mobility
4	The risk of reducing the degree of teaching staff in the EP	Increasing degree of maturity by defending doctoral dissertations
5	An improving digital infrastructure could lead to rapid aging of the existing infrastructure	Timely planned purchase of modern equipment and instruments
6	Weak activity of teaching staff in publishing scientific works in journals with a high citation	Publication plan for teaching staff of scientific articles in journals included in the Web of Science and Scopus databases, in scientific

index	journals with an impact factor
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5. Action plan for the development of EP

№	Criteria	Expected results	Unit	2023-2024		2024-2025	
				plan	fact	plan	fact
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 «7M05101-Biology» in order to increase practice orientation and develop professional competencies of graduates	fact.	-		+	
1.2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies and labor market demands	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.	-		+	
1.3	Introduction into the educational process of modern teaching technologies that contribute to the development of cognitive activity and 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.	-		+	

1.3.1	Introduction into the educational process of massive open online courses (MOOC) according to the educational program «7M05101-Biology»	Introduction of disciplines into the educational process 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	unit	-		1	
1.4	Involving social partners and employers in the development and examination of the implementation of educational programs	Improving the quality of implemented educational programs taking into account market demands and employer recommendations	unit	1		1	
1.5	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	unit	1		-	
1.6	Conducting seminars and round tables on the use of innovative technologies in the educational process	Introduction of innovative technologies into the educational process	unit	1		1	
1.7	Publication of educational, educational-methodological and scientific literature on implemented educational programs	Improving educational and methodological support in the disciplines of implemented educational programs	unit	1		-	
1.8	Concluding agreements with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a base of foreign and domestic universities - partners for the development of academic exchange of students of all levels and teaching staff	unit	1		-	

1.9	Inviting students from partner universities to study for a semester, short-term internships, practice, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	number of people	-		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 Biotechnology	number of people	1		-	
1.11	Development of outgoing academic mobility of teaching staff and students in the direction «7M05101-Biology»	Improving the educational program based on the experience of implementing similar programs in leading foreign universities	number of people	-		1	
Direction 2. Teaching staff							
2.1	Increasing the professional level and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years	The share of teaching staff who have undergone advanced training at the republican and international level is at least 20%	number of people	1		1	
2.2	Completion of advanced training, retraining, internship of teaching staff at the international level	Completion of at least 2 teachers in advanced training, retraining, and internship programs for teaching staff at the international level	number of people	1		-	
2.3	Promotion of publications of teaching staff works in international publications indexed by the Web of Science and Scopus databases	Increasing 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	%	30		30	

2.4	Involving specialists from the practical field of activity in teaching and scientific activities	Participation in the implementation of educational programs of practitioners (at least 20% of specialists)	%	10		20	
Direction 3. Internationalization of educational programs							
3.1	Concluding agreements on international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships for students	unit	1		-	
3.2	Attracting foreign students to study under the educational program «7M05101-Biology»	Increase in the number of foreign students	number of people	1		1	
3.3	Organization of joint scientific and practical events with international partners	Increasing the efficiency of scientific and scientific-methodological activities of teaching staff, exchange of experience with foreign partners	unit	1		1	
3.4	Inviting foreign specialists to give lectures and provide consultations on master's projects and dissertations	Improving the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs	unit	-		1	
Direction 4. Logistics and digitalization							
4.1	Stage-by-stage equipment of classrooms with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	Equipping classrooms assigned to the department with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	unit	1		-	

4.2	Carrying out automation of the educational process (testing, session management, student movement, dean's office, department, teaching staff load, schedule, library, syllabuses)	Information management based on automation of the educational process (testing, session management, student movement, dean's office, department, teaching load, schedule, library, syllabuses)	fact.	+		+	
4.3	Replenishment of the full-text database of scientific research results of teaching staff and students, teaching staff (articles, monographs, etc.)	Increasing the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs, etc.)	unit	2		2	
4.4	Expansion of the fund of scientific and educational literature, including on electronic media for ongoing educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	%	10		10	
4.5	Monitoring the content and improvement of the faculty website	Formation of the faculty website on various aspects of the implementation of educational programs.	%	20		10	

Head of the department

Kakimova Zh.Kh.

REVIEWED

at a meeting of the Commission for Quality Assurance of Engineering
Faculty of Technology

Protocol 5, May 25, 2023

Chairman Abdilova G.B.

APPROVED

Dean of the Faculty of Engineering and
Technology Nurymkhan G.N.

May 26, 2023

