NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

6B07106 - Mechanical Engineering

Semey

NJSC «SHAKARIM UNIVERSITY OF SEMEY CITY»

APPROVED

Board Member -Vice-Rector for Academic Affairs

_____ I. Oralkanova

"25" 05 2023

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

6B07106 Mechanical Engineering

for 2023-2027 academic year

Semey, 2023.

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1. Passport of the Bachelor's Degree Development Plan 6B07106-Mechanical Engineering

(name of the educational program)

1	Basisfordevelopment	Strategic Plan of Shakarim University for 2021-2025 Faculty Work plan
2	Implementationdates 2023-2027	2023-2027
3	Expectedresultsofimplementation	Provision of educational services at the level of world educational standards that ensure the competitiveness of graduates in the labor market. Training of specialists for the implementation of design and design and calculation and technological security of production and the formation of design and technological documentation of machine-building production, able to quickly adapt to rapidly changing socio-economic conditions, as well as meeting the needs of the individual in comprehensive professional and intellectual development.

2.Analytical justification of the educational program (EP)

2.1 Information about the educational program

The educational program is developed in accordance with the National Qualifications Framework and Professional standards, ***according*** to the Dublin Descriptors and the European Qualifications Framework. **The typical** duration of a bachelor's degree program is _ _ _ _ years.

Educational program "6B07106 Mechanical Engineering" was developed by the Academic Committee

Educational program code and name

Reviewed at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology
(Protocol No. 4/6of 10.04.2021.04.202 3)
Approved at the meeting of the Academic Council of the University
(Protocol No. 8 of 25.04.2023).

The main criterion for completing the educational process is the completion of at least 240 credits, with the award of a Bachelor of Engineering and technology degree in the educational program "6B07106-Mechanical Engineering".

2.2 Informationaboutstudents

Academic year / Basis of study	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
Grant	15	18	20	23
Contract	-	-	-	-
Total	15	18	20	23

2.3 Internal and external conditions for educational program development

The academic policy of the department, which implements educational program 6B07106-Mechanical Engineering, is aimed at using innovative teaching technologies based on best practices in teaching modern pedagogical and technical disciplines, at improving the quality of teaching using modern learning strategies, modern teaching methods in higher education.

Students, faculty and staff of the University have unlimited access to information and educational resources and electronic library systems necessary for independent educational and research work. Information electronic resources: full access to databases – Scopus, Science Direct, the Polpred Electronic Library System, Cyberleninka, the Boris Yeltsin Presidential Library, as well as limited access to some electronic databases, including domestic ones (https://web.smart-kitap.kz, http://aknurpress.kz/).

Educational and laboratory classrooms of the Department "Technological Equipment and Mechanical Engineering" are equipped with modern equipment, meet the current sanitary standards, fire safety requirements, and qualification requirements for the activities of educational organizations. These classrooms are used both for conducting classes in the disciplines of educational program 6B07106-Mechanical Engineering,and for independent

work of students, performing course and diploma projects. Educational program 6B07106-Mechanical engineering, is sufficiently provided with basic methodological materials on the subjects taught.

Classrooms of the Department of Technological Equipment and Mechanical Engineering are connected to the WI-FI networkfor holding online conferences, lectures, seminars with the participation of leading scientists from Kazakhstan, near and far abroad. There is a portal of educational resources of the Shakarim University in Semey (http://ais.semgu.kzais/), which contains lectures, videos, hyperlinks, tasks for self-checking, presentations on topics, textbooks, and other educational and methodical content on the subjects studied in the OP, the content of which the teaching staff uses in the classroom, and to which students have round-the-clock access. To comply with the principle of academic integrity, all course and examination papers, dissertations are checked for anti-plagiarism in the system https://www.turnitin.com/. The most common innovative methods developed by teaching staff of departments for lecturing, conducting practical and laboratory classes, protecting and pre-protecting graduation papers include: video lectures, slide presentations, working with an interactive whiteboard, using the COMPASS-3D graphic editor, AutoCAD, ADEM, SolidWorks, and Autodesk Inventor.

A branch of the department operates on the basis of the enterprise JSC "Semey Engineering", an enterprise that uses modern technology in the production of machine-building products and is equipped with advanced machine-building equipment to conduct educational and practical classes, joint research, preparation and implementation of scientific projects of students.

All types of practices implemented within the framework of the EP are carried out in accordance with the end-to-end internship program approved by the Vice-Rector for Academic Affairs, the academic calendar, contracts with the practice bases, as well as on the basis of P 042- 1.01-2022 Regulations on professional practice and determination of organizations as bases of Bachelor's and higher special education practices of Shakarim Universityand the order the rector of the university. Practice databases meet the requirements and content of the practice.

The practice bases of EPMechanical Engineering are Joint-Stock Company Semipalatinsk Machine-Building Plant, Joint-Stock Company Semey Engineering, Limited Liability Company SemAZ, Limited Liability Company KazNII PPP, Limited Liability Company PKF Semey Steel Service, Limited Liability Company SEIVUR LTD, Limited Liability Company Limited Liability Company "Kazelectromash", Limited Liability Company "Daewoo Bus Kazakhstan", Limited Liability Company "PC "Semey Cement Plant", ToLimited Liability Company "Kaztsinkmash", LLP "Georgievsky Pump Plant".

2.4 Information about teaching staff implementing the educational program

The teaching staff of the department "Technological Equipment and Mechanical Engineering", which ensures the implementation of EP 6B07106-Mechanical Engineering, consistsof 1-2 people, including 2 doctors of technical sciences, 3 candidates of technical Sciences, 4 PhD doctors, 2 senior teachers, 1 lecturer. The department's graduation rate is 75.0 %.

The Department of "Technological Equipment and Mechanical Engineering" carries out the educational process in three levels of study: bachelor's, Master's and PhD doctoral studies. The formation of scientific and pedagogical personnel at the department is carried out through training through a master's degree, advanced training of the teaching staff.

EP teachers undergo advanced training in leading universities of Kazakhstan (according to the FPC plan) and training seminars held by the Ministry of Education and Science of the Republic of Kazakhstan, universities and other organizations. Teachers ' training is confirmed by certificates

and certificates. Teachers of EP 6B07106-Mechanical Engineering, in 2022 completed a course of advanced training in the program "Technology of mechanical engineering, metal-cutting machines and tools" in the NJSC"Karaganda Technical University named after A. Saginov".

The qualified staff of teachers is able to provide a high-quality educational process, meets the qualification requirements, level and specifics of the educational program.

Teachers of the Department take part in competitions for grant funding, program-targeted financing of projects by the administrator, which are the Ministry of Education and Science of the Republic of Kazakhstan, the Ministry of Agriculture of the Republic of Kazakhstan, development institutes.The scientific direction of the department is related to research in the field of improving technological machines and equipment, processes and apparatuses of the food, meat and dairy and pre-processing industries, alternative energy. The faculty of the department has a high scientific and methodological publication activity. The results of scientific activity of teachers are reflected in scientific publications with an impact factor. Scientistsof the TOiM departmenthave an h-index in the Webof Science and Scopus databases.

№	Indicators	IndicatorsUnits	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
1	Share of teaching staff with an academic degree in EP	%	**75**	**75**	**75**	**75**
2	Including the share of teaching staff with an academic degree in the OOD cycle	%	**50**	**50**	**50**	**50**

2.5 Characteristics of the EP's achievements

EP 6B07106-Mechanical Engineering, 7M07104-Mechanical Engineering successfully passed the independent agency for accreditation and examination of the quality of education "ARQA"for a period of 5 years (OP 6B07106-" Mechanical Engineering " registration number HE-SA-000137 from 20.06.19 to 19.06.2024)**.**

3. Main objectives of the OP development Plan

For effective implementation of the OP, the following tasks are defined:

- Providing high-quality training of competitive specialists
- Development and implementation of scientific projects
- Development of human resources
- Strengthening the material and technical base
- Development of international cooperation

The expected final results include: participation in funded grant projects, publishing activity of teaching staff in rating publications with a non-zero impact factor, development and functioning of joint educational programs with foreign universities**,** implementation of research results in the educational process, involvement of undergraduates in research, academic mobility of students and teaching staff.

4. Risk analysis of the EP

№	Nameofrisks	Measurestoeliminate
1	Reduction of the number of students enrolled in EP	Activation of career guidance work, including in social networks for bachelor's and master's degrees. Work in the admissions committee, information material on the EP, updating the EP page on the university's website
2	Insufficient level of language proficiency for the introduction of trilingual education	Foreign language courses, including those organized on the basis of the university.
3	. Reductionof employmentin the level of employment opportunities	Coordination of supply and demand for EP graduates, development of courses of the educational program taking into account the recommendations and needs of employers. Use of a system for informing graduates and employers about vacancies and candidates.
4	Insufficient development of external and internal academic mobility of students and teaching staff	Conducting an analysis of academic mobility of students and teaching staff, strengthening work with them to activate academic mobility
5	Risk of reducing the degree of academic staff in the EP	Training of young teachers by entering doctoral studies.

5. Action plan for the development of the OP

№	Criteria	Expected results	Units	__-202_ _ academic year		202__-202__ academic year		202__-202__ academic year		202__-202__ academic year	
				plan	Actual implementation	plan	Actual implementation	plan	Actual implementation	plan	Actual implementation
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 expert examination of the Educational Program "6B07106-Mechanical Engineering"in order to improve the practice orientation and develop professional competencies of graduates	fact.	+		+		+		+	
1.2	Monitoring and updating the catalogues of elective subjects in accordance with the development of key and professional competencies, the requirements 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 requirements of the labor market.	fact.	+		+		+		+	
1.3	Introduction into the educational process of modern teaching technologies that promote the development of cognitive activity, communication ability of students	Improving the quality of teaching academic subjects, taking into account the novelty and variety 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 program into the educational process 6B07106-Mechanical engineering	Introduction of disciplines in the educational process Improvement of 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.	units.	**1**		**0**		**0**		**0**	
1.4	Involvement of social partners and employers in the development and expertise of educational programs	implementation Improvement of the quality of educational programs implemented taking into account market demands and recommendations of employers	units.	**1**		**1**		**1**		**1**	
1.55	Development and implementation of elective courses in English	IntroductionofdisciplinesinEnglish	units.	**0**		**0**		**0**		**0**	
1.6	Conducting seminars and round tables on the use of innovative technologies in the educational process	Introduction of innovative technologies in the educational process	units.	**1**		**1**		**1**		**1**	
1.77	Publication of educational, teaching-methodical and scientific literature on implemented educational	programs Improvement of educational and methodical provision in the disciplines of implemented educational programs	units.	**1**		**1**		**1**		**1**	
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	units.	**0**		**0**		**0**		**0**	

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	pers.	-		-		-		-	
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 direction 6B071-Engineering and Engineering	pers.	-		-		-		-	
1.11	Development of outgoing academic mobility of teaching staff and students in the direction 6B071 - Engineering and engineering	Improvement of the educational program based on the use of experience in implementing similar programs in leading universities of the Republic of Kazakhstan.	pers.	-		**1**		**1**		**1**	
Direction 2. Teachingstaff											
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 completed advanced training at the national level is not less than 20%	pers.	**0**		**0**		**0**		**0**	
2.2	Completion of advanced training, retraining, internships of teaching staff at the international level	Completionof at least 2 teachersprofessional development programs, retraining, internships of teaching staff at the international level	pers.	**2**		**2**		**2**		**2**	
2.3	Promotion of teaching staff publications in international publications indexed by the Web of Science and Scopus databases	Increasing the share of teaching staff who have published research results in publications indexed by the Web of Science and Scopus databases – at least 30% of the total number of teaching staff	%	**30**		**35**		**35**		**40**	

2.4	Involvement of practical specialists in teaching and research activities	Participation of practical specialists in the implementation of educational programs (at least 20% of specialists)	%	**20**		**20**		**20**		**20**	
Direction 3. Internationalization of educational programs											
3.1	Conclusion of contracts for international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships of students	units.	**-**		**1**		**1**		**1**	
3.2	Attracting foreign students to study under the educational program "6B07106-Mechanical Engineering"	Increase in the number of foreign students	pers.	-		-		-		-	
3.3	Organization of joint scientific and practical events with international partners	Improvement of the effectiveness of scientific and methodological activities of teaching staff, exchange of experience with foreign partners	units.	**0**		**0**		**0**		**0**	
3.4	Invitation of foreign specialists for 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	units.	**0**		**1**		**0**		**1**	
3.5	Expansion of cooperation with Leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to implement educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	pers.	-		-		-		-	

Direction 4. Logisticsanddigitalization											
4.1 Step-by-	step equipping classrooms with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunctional devices, web cameras, projector screens, etc.)	Equipping classrooms assigned to the department with technical training facilities (projectors, panels, interactive and multimedia whiteboards, multifunctional devices, a webcam, a projector screen, etc.)	units.	**1**		**1**		**1**		**1**	
4.2	Implementation of automation of the educational process (testing, session management, movement of the student body, dean's office, department, teaching staff load, schedule, library, syllabuses)	Information management based on automation of the educational process (testing, session management, movement of the student body, dean's office, department, teaching staff load, schedule, library, syllabus)	fact.	+		+		+		+	
4.3	Updating the full-text database of research results of teaching staff and students, teaching staff (articles, monographs, etc.)	Increase in the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs, etc.)	units.	**1**		**2**		**2**		**2**	
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	%	**5**		**5**		**5**		**5**	
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.	%	**50**		**50**		**50**		**50**	

Head of the Department «TEaME» _____ **Zhumadilova G. A.**

REVIEWED
at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology
Minutes of the Meeting No.5 dated 25.05.2023
Chairman of the QAC _____ Abdilova G. B.

AGREED
Dean of the Faculty _____ Nurymkhan G. N.
" 25 " May 2023