NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

6B07302 - Civil engineering

Semey

NJSC «SHAKARIM UNIVERSITY OF SEMEY»

APPROVED

Board member- Vice- rector for academic affairs

_____ I.Oralkanova

«25» 05 2023

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

6B07302 «Civil Engineering»

(code and name of educational program)

2023-2027

Semey 2023

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1. Passport of the Bachelor's/Master's Degree Development Plan 6B07302 - «Civil Engineering»

(Name of the EP)

1	The basis for the development	The strategy and topics of the development plan of the OP are based in accordance with the educational policy of the Republic of Kazakhstan, the Strategic Plan of the Shakarim University for 2021-2025, the Work Plan of the Faculty of Engineering and Technology, the quality goals of the Department of Automation, Information Technology and Urban Planning.
2	Developed by the Academic Committee of the OP	Head of AK: Nurymkhan G.N. - Dean of the Faculty of Engineering and Technology, T.G.K., kauymd.Professor OP Manager: Zhumadilov I.T. - PhD, assoc.professors of the Department of "Automation, Information Technology and Urban Planning"; AK members: Kozhakhmetova D.O. - Head of the Department "Automation, Information Technology and Urban Planning"; Sadvakasova G.O. - Senior Lecturer of the Department of Automation, Information Technology and Urban Planning Employer: Dyusembayev A.M. - Chief Engineer of Partner Energo LLP Ltd»; Bazylkhanova L.S. - Director of Gidrostroymontazh LLP; Tleugazhi A.S. - student of the group ST-101 OP 6B07302- Civil Engineering; Esengaliev I.R.- student of the group ST-009 OP 6B07302- Civil Engineering; Reviewer: E.S. Slyamkanov - Director of Semstroyproekt LLP (in accordance with Order No. 99 of 03/29/2023)
3	Terms of implementation	2023-2027
4	Expected results of implementation	Preparation of bachelors with professional competencies in the field of construction and design of buildings and structures for various purposes, inspection and reconstruction of existing buildings, capable of self-improvement and self-development, with the mobility of graduates in changing labor market conditions.

2. Analytical justification of the OP

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 **6B07302 - «Civil Engineering»** developed by the Academic Committee
(EP code and name)

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

Approved at the meeting of the Academic Council of the University (Protocol №8 of 04/25/2023)

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 in OP 6B07302 – "Civil Engineering".

The educational program 6B07302 " Civil Engineering " has passed the specialized international IAAR accreditation for a period of 5 years, from 16.04.2021 to 15.04.2026 (BSN registration number: 130840007973).

This educational program is aimed at the formation of basic knowledge in the field of industrial and civil engineering technologies. The purpose of the training is to form the student's competencies in the field of calculation, design, design of buildings, structures and their structures, taking into account technologies, organizations of construction production, using design standards, standards, computer-aided design tools.

The types and objects of professional activity are:

- development of design documentation at the stage of architectural, construction and structural solutions of buildings and structures;
- construction of buildings using structures made of reinforced concrete, metal, wood and plastics;
- application of modern materials and methods of work in construction;
- application of modern software systems and computer modeling, automation of design and construction;
- development of project documentation at the stage of construction production technologies, works and construction organization;
- inspection and examination of buildings and structures;
- work in the field of management and operation of construction.

The competitive advantages of this program include:

- the possibility of obtaining design skills in modern software products;
- the use of modern methods, tools and technologies of training;
- comprehensive development of students' research skills, the possibility of their participation in the implementation of scientific projects in cooperation with leading enterprises in the construction sector.

The acquired skills of designing buildings and their structural elements will allow future graduates to carry out large-scale high-tech projects.

The program develops students' skills in analyzing and developing design documentation for architectural, construction and structural solutions of buildings and structures, construction production technologies, using mathematical and computer technologies and methods.

Areas of knowledge and professional competencies:

- architecture, design and construction;
- mathematical modeling, theoretical and structural mechanics;
- building structures (metal, reinforced concrete, stone, wood and plastics), foundations and foundations, soil mechanics;
- technologies of construction production, design of works and organization of construction;
- project management, pricing and estimated rationing, construction quality, technical regulation;
- computer modeling, computer-aided design, construction and construction management.

Depending on the chosen disciplines, students can learn in more detail the skills of performing calculations and designing building structures, designing buildings and structures taking into account the requirements for energy conservation, natural lighting, insolation, acoustics, technology design and organization of construction production, methods of structural research.

The knowledge and skills base laid down will allow the graduate of the Construction Department to find a job in the most liked direction, this is either the design of buildings and structures in a design organization, or the management of the construction process directly on the construction site, or the quality control of construction and installation work performed, or ensuring the durability of building structures.

2.2 Information about students

Mode of study / Academic year	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
Grant	34	30	30	30
Contract	41	35	35	35
Total	75	65	65	65

2.3 Internal and external conditions for the development of EP

To implement the above-mentioned purpose of the educational program, the department has the appropriate material and technical resources. 9 classrooms are involved: 4 lecture halls, equipped with LSD projectors and interactive whiteboards, 3 computer classes with a LAN connection and unlimited Internet, 2 specialized laboratories. Thus, to date, the classroom fund of the department is sufficient for the successful implementation of the OP plan, only equipment should be improved. To attract students to research activities, there is a specialized laboratory "Building Materials" (1213 aud), in addition, certified laboratories of Silicate LLP, “Semey Cement Plant” LLP.

EP " Civil Engineering " is one of the first to implement dual training at the university since 2016. This makes it possible to conduct field classes at enterprises with the involvement of practitioners with sufficient experience in production. Dual training is carried out on the basis of leading large enterprises of the city such as: LLP PII "Semstroyproekt", LLP "Firm Asia" concrete plant, LLP "Partner-Energo Ltd", LLP "Semey-Department-Stroy", LLP "TurMerStroy", LLP "Semey Cement Plant", LLP "Architecture F", Vostok-Stroy LLP, “Arlanstroymontazh” LLP.

The financial resources of the OP are provided by the university budget, as well as research and international projects. Information resources are at the disposal of the OP and are represented by the library (including electronic publications), access to the Internet for all students and teaching staff, access to the local network of the university. There are open WI-FI zones. The personnel of the OP is fully staffed, according to the qualification requirements. The provision of educational programs with educational and methodological complexes of disciplines is 100%. The work on mobility has been well done: Cooperation between Kazakh Universities has been expanded (Gumilev ENU, IOC KAZGAS, EKSTU named after Serikbayev, KazNITU Satpayev, Toraigyrov University, Karaganda Industrial University, where the Construction educational program is directly implemented, also signed cooperation agreements with leading universities in Russia.

In 2015, a cooperation agreement was signed between the Siberian State University of Geosystems and Technologies (Russia). In 2016, an agreement was signed with Novosibirsk State University of Architecture and Civil Engineering (Russia).

During the development of the OP, employers took part in its discussion: E.S. Slyamkanov - Director of Semstroyproekt Design and Survey Institute LLP, A.M. Dyusembayev - Chief engineer, Partner Energo Ltd LLP, who represented the interests of leading specialists in the construction industry of the city.

According to the OP, contracts were concluded for the passage of industrial practice with PII Semstroyproekt LLP, POSZHB LLP, Firm Asia LLP, Semey-Dept-Stroy LLP, TurMerStroy LLP.

2.4 Information about teaching staff implementing the educational program

The staff of the teaching staff of the department for the 2023-2024 academic year is 23 people, including 5 people with academic degrees and titles. The number of full-time teaching staff with academic degrees and titles has been increasing in recent years. The personnel policy pursued by the management of the department and the university, which is aimed at creating conditions and assisting in admission to the target PhD-doctoral program, contributes to maintaining stability. In order to improve the quality of the disciplines taught in Construction for the 2023-2024 academic year, practical teachers who are active employees of construction companies have been involved. These are: Chumichkin R.P.,Toktasyn N.Zh., Moldakhanova A.B., Suleimenov D.S., Kayyrbayev E.B.

A number of teachers, such as Sadvakassova G.O., Kauassova M.A., Zhumadilov I.T. have practical experience working at enterprises: Sadvakassova G.O. – An engineer at the plant, Kauassova M.A. – an engineer at Klmstroymontazh LLP and a number of other enterprises, Zhumadilov I.T. – An Engineer at KGS LLP.

In order to improve the quality of teaching disciplines, the teachers of the department implementing the OP are activating the introduction and further application in the educational process of new information technologies, multimedia learning tools, active learning tools and elements of E-lerning, Soigs, which enable students to better assimilate educational material and consolidate knowledge.

The teaching staff conducting classes on the OP has the necessary qualifications and level of education.

The number of full-time teaching staff conducting training sessions on this OP is 30 people. Including those with academic degrees and titles – 16, which is 53% of the total number of teachers. Among the teaching staff are Doctors of Technical Sciences, Candidates of Sciences, PhD, Masters.

2.5 Characteristics of the achievements of the EP

The main indicator of the effectiveness of the educational program is the proportion of employed graduates. The dynamics of the share of those employed in recent years has been, respectively, by year: 2016 – 100%, 2017 – 95%, 2018 – 90%, 2019 – 100%, 2020 - 82%, 2021 - 88%, Attracting students to research is more than 65%. An important indicator of the relevance and relevance of educational programs, their compliance with modern trends in education is the academic mobility of students and teaching staff.

Involvement of professors of leading foreign universities in teaching and research activities. To improve the level of education, foreign scientists are invited to give lectures to students of this specialty, so from November 15-24, 2018, Professor Victor Nicholas Kalyakin of the University of Delaware, USA held a seminar on "Geosynthetic reinforcement of soil foundations: understanding their behavior through numerical modeling", Professor Viktor Kaliyakin came to lecture on the disciplines of Geotechnics, foundations and foundations with October 14-21, 2022, also November 13, 2020 Professor Akira Hasegawa, Hachinohe Institute of Technology, Japan conducted an online seminar for teachers of the department on the topic "Geotechnical design of foundations and foundations in seismic areas" (Geotechnical design of foundations and foundations in seismic areas).

3. The main objectives of the OP development plan

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

1) Provide a level of education that meets modern requirements:

- develop independent thinking, the ability to self-development and self-education;
- to provide conditions that take into account the individual and personal characteristics of the student;
- to create a creative atmosphere by organizing a system of electives, elective courses, clubs, sports sections, paid educational services;
- to form a positive motivation of students for learning activities.
- continue work on the organization and formation of specialized training;

2) To form a creatively working team of teachers:

- to organize the study, implementation and improvement of technology and methods for diagnosing the quality of education;

- organize the publication of creative and scientific works of teachers;
- to continue the training of teachers on the use of information technology in the educational process.

3) To improve the organization of the educational process:
- to improve the interaction of academic disciplines on the basis of integration;
- to develop the differentiation of learning, the technology of problem-based learning;
- to introduce technologies that form key competencies into the educational process.

Expected final results of the implementation of the OP development plan:

1. Improving the quality of education;
2. Improving the efficiency of the education system, continuous professional growth of the teaching staff of the department;
3. Modernization of personnel, information and resource, material and technical potential;
4. The demand for graduates in the labor market.

4. EP risk and analysis

№	Name of risks	Measures to eliminate
1	Reduction of the contingent of students in the EP	To conduct active career guidance work among the schools of the city and the Region of Abai. To participate in events held at the university level, In trips "Shakarim kerueni", etc. Attracting startup students, meeting with parents of graduates at parent meetings, engaging in research, etc. Formation of a positive image of the OP (through the release of highly qualified specialists and the introduction of research results, etc.);
2	Insufficient level of knowledge of the language for the introduction of multilingualism	Stimulating the teaching staff of the OP to increase the level of English language proficiency by attending additional courses in the foreign language.
3	Decrease in the level of employment	To increase cooperation with the leading industrial enterprises of the region, to expand the bases of practices, to increase academic hours in the dual type of training. To increase the interest of managers and part-time employees from enterprises by increasing wages as an engaged practitioner within the framework of dual training.
4	Insufficient development of external and internal academic mobility of students and teaching staff	Attracting students by increasing their interest to participate in academic mobility within the country and abroad.
5	The risk of reducing the settling down of teachers staff in the EP	To send young and promising teachers to the target PhD doctoral program. Improving the level of knowledge of a foreign language. To attract settled specialists by creating additional conditions by the university management.
6	Insufficiency of the material and technical base for OP	To acquire and update the material and technical base (computers, laboratory equipment) by submitting an application through the state procurement department.

5. Action plan for the development of the EP

№	Criteria	Expected results	Unit. Of measur.	2023-2024	2024-2025	2025-2026	2026-2027
Направление 1. Учебно-методическое обеспечение							
1.1	Updating the educational program based on professional standards, taking into account the recommendations of employers	Conducting an examination of the Educational program "Construction" 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 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	+	+	+	+
1.3.1	Introduction of mass open online courses (MOOCs) in the educational process according to the educational program Construction	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.	units		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	units	**2**	**2**	2	**2**
1.5	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	units		**1**		**1**
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	units	**1**	**1**	**1**	**1**
1.7	Publication of educational, methodical and scientific literature on the implemented OP	Improvement of educational and methodological support in the disciplines of the implemented educational programs	units	**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 partner universities for the development of academic exchange of students of all levels and teaching staff	units	**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	hum.	**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 Architecture and construction	hum.	**1**	**1**		**1**

1.11	Development of outgoing academic mobility of teaching staff and students in the direction of Architecture and construction	Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities	hum.	2	2	2	2
Direction 2. Teaching staff							
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%	hum.	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	hum.	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	%	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)	%	20	20	20	20
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	units	1	1	1	1

3.2	Attracting foreign students to study under the educational program "Construction"	Increasing the number of foreign students	hum.		**1**		**1**
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	units	**1**	**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	units	**1**	**1**	**1**	**1**
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	hum.	**1**	**1**	**1**	**1**
Direction 4. Logistics and digitalization							
4.1	Step-by-step equipment of classrooms with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen)	Equipping classrooms assigned to the department with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunctional devices, webcam, projector screen)	units	**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 contingent movement, dean's office, department, teaching staff workload, schedule, library, syllabuses)	fact	+	+	+	+
4.3	Replenishment of 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**	**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	%	**10**	**10**	**10**	**10**
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	%	**100**	**100**	**100**	**100**

Head of the Department «AITiG» **Kozhakhmetova D.**

REVIEWED

At the meeting of the Quality Assurance Commission
Faculty of Engineering and Technology
Minutes of the meeting № 5 «25» 05 2023

Chairman of the QAC _____ Abdilova G.

AGREED

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

«25» 05 2023