NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

6B07301 - Geodesy and Cartography

Semey

NJSC «SHAKARIM UNIVERSITY OF SEMEY»

APPROVED

Board member- Vice- rector for academic affairs

_____ I.Oralkanova

«__25__» __05__ 2023

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

6B07301 «Geodesy and cartography»

(Code and name of educational program)

2023-2027

Semey 2023

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1. Passport of the Development plan for the 6B07301 – “Geodesy and cartography” bachelor’s degree educational program (EP)

1	Basis for development	The State Program "Digital Kazakhstan", adopted on December 12, 2017, covers all spheres of activity from healthcare to industry, including the field of geodesy. Digital technologies have become a solution to the problem of faster and more reliable creation, transfer and storage of information as opposed to analog. With digitalization, more and more geo-information maps focused on industry data are emerging in Kazakhstan.
2	Developed by the Academic Committee of the EP	Head of the certification committee: Nurimkhan G.- Dean of Engineering and technology faculty, PhD. Manager EP: Baibossinova K. – Senior lecturer of the Department of "Automatization, Information yechnology and urban Planning", Master of technical sciences. Certification committee members; Kozhakhmetova D – Head of the Department of "Automatization, Information technology and urban Planning", PhD Seitkazina G. – Senior lecturer of the Department of "Automatization, Information yechnology and urban Planning", Master of technical sciences Ymployers: 1 Kemerbayev N.- Director of “GEOID” LLP, 2 Toktassyn N.- Head of the topographer group of “Semstroyproekt” LLP Learners: 1 Shaidollaeev E. – student of group GK-007 2 Turdina N.- student of group GK-101 ***(In accordance with order № 99 dated 29.03.2023)***
3	Implementation timeframe	2023-2027
4	Expected results of realization	Preparation of bachelors with general cultural and professional competencies in the field of geodesy, cartography and geospatial data, etc., constituting the direction of training, meeting the requirements of employers.

2. Analytical rationale of the EP

2.1 Information about EP

The educational program is developed in accordance with the National Qualifications Framework and professional Standards, in accordance with the Dublin Descriptors and the European Qualifications Framework.

The study period of the Bachelor's degree program is 3.5 years.

6B07301 «Geodesy and cartography» educational program is developed by the Academic Committee

Reviewed at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology (**Protocol № 4/6, 10.04.2023**)

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

The main criterion for the implementation of the educational process is the completion of at least 240 credits, with the award of the Bachelor of Engineering and Technology under the educational programme «6B07301 Geodesy and cartography» degree.

The uniqueness of "6B07301 Geodesy and Cartography" educational program in the direction of training "6B073 Architecture and Construction", implemented by NJSC "Shakarim University of Semey", is developed taking into account the needs of the regional labor market.

The educational program 6B07301 "Geodesy and Cartography" has undergone specialized accreditation by ARQA for a period of 5 years, from June 20, 2019 to June 19, 2024 (registration number HE-SA-000134).

The content of the educational program is implemented through the curriculum, developed in a modular format, which provides two cycles of disciplines: the cycle of basic disciplines and the cycle of profile disciplines, as well as additional types of training.

2.2 Information about students

Academic year / Form of education	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
Grant	30	30	30	30
Contract	25	25	25	25
Total	55	55	55	55

2.3 Internal and external conditions for the development of the EP

To implement the educational program 6B07301 "Geodesy and cartography" the department has appropriate material and technical equipment. The department has the main instruments for mastering the subjects, both optical and electronic theodolites, levels, total stations, as well as the necessary software.

To date, the auditorium fund of the department is sufficient for the successful implementation of the OP plan. The department is equipped with 4 computer classes with local network connection and unlimited Internet, 7 specialized laboratories, 14 classrooms. Information resources are represented by the library (including electronic editions), access for all students and faculty to the Internet, access to the local network of the university. There are open WI-FI zones on the territory of the university.

Today dual education is a promising direction in the training of specialists, combining university education with mandatory periods of industrial training. In the educational program 6B07301 "Geodesy and Cartography" dual education has been introduced, which allows conducting classes at production facilities/enterprises with the involvement of specialists.

The educational program 6B07301 "Geodesy and Cartography" successfully carries out work on the program of internal and external academic mobility.

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 EP, employers took part in its discussion: N.T. Kemerbayev - Director of GEOID LLP, N.T. Toktasyn - head of the group of topographers of Semstroyproekt LLP, who represented the interests of production specialists.

According to EP 6B07301 "Geodesy and cartography", contracts have been concluded for the passage of industrial practices and for the organization of dual training with the following organizations: "GEOID" LLP, Branch of the RSOE "Kazgeodeziya" "Shygysgeodeziya" of the Committee of Geodesy and Cartography of the MDDIAI RK, "Architecture F" LLP, "GeoSemStroyProekt" LLP, "Zhana Zhol" LLP, "Semdorproekt" LLP, "Gordorstroy" LLP, "Vostok-Stroy Company" LLP, "Asyl Zhol Group" LLP, "Damu Stroy LTD" LLP, "Arlan Stroy montazh KZ" LLP, "Semstroyproekt" LLP , Branch of the RSE at the National Center of Geodesy and Spatial Information of the Committee of Geodesy and Cartography of the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan.

2.4 Information about teaching staff implementing the educational program

The total number of the teaching staff of the department as of September 1, 2023 was 23 people, including 5 people with academic degrees and titles. All teachers have extensive teaching experience, academic titles and degrees, as well as work experience in production.

Teachers with experience in production: Sadvakasova G.O., Zhumadilov I.T., Chumichkin R.P., Toktasyn N.J., Moldakhanova A.B., Kudaibergenova D.T., Muhamediyarova T.D., Kauasova M.A.: Sadvakasova G. O. - plant engineer, Zhumadilov I.T. - engineer of "KGS" LLP, Chumichkin R.P. - The leading surveyor of “TOLAGAI-KEN LLP”, Toktasyn N.Zh. - head of the group of topographers of “Semstroyproekt” LLP, Moldakhanova A.B. - Head of the Semey Department for Registration and Land Cadastre of the branch of the NJSC "State Corporation Government for Citizens", Kudaibergenova D.T. founder of “Troika Plus” Corporation LLP, Mukhamediyarova T.D. – cartographer engineer of the branch of the RSOE "Kazgeodeziya" "Soltustikgeodeziya", Kauasova M. A. - engineer of “Komstroymontazh” LLP and other enterprises,

The teaching staff of the department is constantly improving their knowledge in this field and are undergoing advanced training, including short-term refresher courses, attending various seminars, internships at leading universities in Kazakhstan, far and near abroad, as well as in relevant organizations of the industry.

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 employed in recent years has been, respectively, by year: 2018 – 90%, 2019 – 100%, 2020 -82%, 2021-92%, 2022-82.4%.

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.

In the 2018-2019 academic year, students of the specialty 5B071100/6B07301 "Geodesy and cartography" Abd Malik K., Baltabekova N., Muratkhan M. studied at D.Serikbayev EKTU under the academic mobility program.

In the 2020-2021 academic year, students of the specialty 5B071100/6B07301 "Geodesy and cartography" Aubakirova T.A., Dairenova A.S. studied at the D.Serikbayev EKTU under the academic mobility program.

In the 2021-2022 academic year, senior lecturer K.B. Baybosinova lectured at D.Serikbayev East Kazakhstan Technical University under the academic mobility program of teaching staff.

In the 2022-2023 academic year, a student of EP 6B07301 "Geodesy and Cartography" GC-007 Tolkynuly Sumbile studied at the Kazakh Agrotechnical Research University named after S.Seifullin under the academic mobility program.

Involvement of professors of leading foreign universities in teaching and research activities. To improve the level of education, it is planned to invite foreign scientists to give lectures to students of this EP in 2023-2027.

3. The main objectives of the EP development plan

The purpose of the EP and its development is its improvement in accordance with the mission and strategy of the university, aimed at training highly qualified, competitive personnel, improving the quality of knowledge, forming a multi-level system of research activities in accordance with the current needs of modern education and science, transformation into an innovative world-class university.

The main purpose of EP 6B07301 "Geodesy and Cartography" is to prepare bachelors with general cultural and professional competencies in the field of geodesy, cartography and geospatial data, etc., which make up the training area that meets the requirements of employers.

To implement the educational program 6B07301 "Geodesy and cartography", the following tasks are defined:

- to ensure the level of education of students that meets the modern requirements of the specifics of the EP
- to develop independent thinking, the ability to self-development and self-education among students and teaching staff;
- provide conditions that take into account the individual and personal characteristics of the student;
- to form a positive environment among students for fruitful learning activities.
- to organize the study, implementation and improvement of technologies and methods for diagnosing the quality of education;
- to introduce information technologies into the educational process.
- to improve the organization of the educational process:
- to improve the interaction of academic disciplines;
- develop dual training;
- to introduce technologies that form key competencies into the educational process.

4. Risk analysis of EP

№	Name of risks	Corrective measures
1	Reduction of the contingent of students in the EP	Formation of a contingent of students through career guidance and information and advertising work (improving the effectiveness of speaking in the media), the creation of multilingual learning groups; the formation of a positive image of the EP

2	Insufficient level of knowledge of the language for the introduction of multilingualism	Taking language courses
3	Decrease in the level of employment	Work on dual training
4	Insufficient development of external and internal academic mobility of students and teaching staff	Conclusion of contracts with universities
5	The risk of reducing the settling down of the Teaching staff by EP	Financial support of initiative teachers; motivation and stimulation to scientific and pedagogical activity (material encouragement for the manifestation of creative qualities); professional development of the staff of teaching staff through doctoral studies
6	Insufficient provision of educational and methodological literature on professional disciplines in the state language	Plan the annual release of scientific and educational literature in the state language by scientists and teaching staff
7	Material and technical base	Implementation of annual purchases of modern equipment and verification of equipment; timely repair of educational laboratories
8	Weak involvement of teaching staff and students in research activities	Work in scientific society, participation in international and national scientific conferences and competitions, in competitions for grant funding

5. Action plan for the development of EP

№	Criteria	Expected results	unit of measurement	2023-2024	2024-2025	2025-2026	2026-2027
Direction 1. Educational and methodological support							
1.1	Educational updating program based on professional standards with considering the recommendations of employers	Carrying out an examination of "6B07301 Geodesy and cartography" Educational program in order to improve practice-oriented and development of professional competencies of graduates	fact	+	+	+	+
1.2	Monitoring and updating catalogs of elective disciplines according of key and professional competencies, demands of labor market.	Improving the quality of content educational programs through inclusion of elective courses aimed at developing key and professional competencies of graduates in accordance with labor market demands.	fact	+	+	+	+
1.3	Introduction of modern teaching technologies into the educational process, promoting the development of cognitive activity and communicative ability of students	Introduction of modern teaching technologies into the educational process, promoting the development of cognitive activity and communicative ability of students	fact	+	+	+	+

1.3.1	Introduction of mass open online courses (MOOCs) into the educational process according to the educational program 6B07301 «Geodesy and Cartography»	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**
1.4	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**	**1**	**1**	**1**
1.5	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	unit	**-**	**-**	**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	unit	**-**	**1**	**1**	**1**
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**	**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	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	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 direction 6B07301 «Geodesy and cartography»	people	**-**	**-**	**-**	**1**
1.11	Development of outgoing academic mobility of teaching staff and students in the direction 6B07301 «Geodesy and cartography»	Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities	people	**-**	**1**	**1**	**1**
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%	people	**-**	**20**	**20**	**20**
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	people	**-**	**-**	**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	%	**-**	**30**	**30**	**30**
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	unit	**-**	**-**	**-**	**1**
3.2	Attracting foreign students to study under the educational program 6B07301 «Geodesy and cartography»	Increasing the number of foreign students	people	**-**	**-**	**-**	**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	unit	**-**	**-**	**-**	**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	people	-	-	-	-
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)	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 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.)	unit	**2**	**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 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 Department _____ **Kozhakhmetova D.**

REVIEWED
at the meeting of the Quality Assurance Commission
Faculty of Engineering and Technology
Minutes of the meeting № 5 от 25 05 2023 г.

Chairman _____ Abdilova G.

APPROVED
Dean of the Faculty _____ Nurimkhan G.

«25» 05 2023