Approved by
Director of MaMI
_____ Rysbekov K.B.
"27" ____01____2025 Y.
Protocol №5 AC MaMI

DEVELOPMENT PLAN
EP "7M07235 Surveying business"

1 General information

EP "7M07235 – Surveying" was developed in accordance with the National Qualifications Framework, aligned with the Dublin Descriptors and the European Qualifications Framework, and is focused on accelerated practical training of specialists. The program is based on a modular principle and includes disciplines that form professional competencies necessary for solving applied production tasks.

EP "7M07235 – Surveying" is aimed at training qualified engineers, who are in demand in such areas as complex processing of mineral raw materials, extraction of hydrocarbons, industrial and civil engineering, mining and metallurgical industries. The program combines modern surveying technologies with digital methods of spatial analysis and 3D modeling, providing graduates with competitive advantages in real-world production.

The training focuses on the development of relevant geodetic and surveying technologies, automated control systems and monitoring of geospatial data. The practical focus of the program allows undergraduates to apply their knowledge directly in production, implement digital solutions, increase the efficiency of using natural resources and participate in the implementation of sustainable development projects for enterprises.

2 Educational program planning

Planning and management of the educational program of the EP "7M07235 Surveying" is carried out on the basis of priority areas and strategic goals of K.I. Satpayev KazNTU (https://official.satbayev.university/ru/university/mission-strategy) and the O.A. Baikonurov Mining and Metallurgical Institute, reflecting the vision, mission, strategic directions and key performance indicators (https://official.satbayev.university/ru/mining-metallurgy).

3 The purpose of EP development

Training of qualified engineering personnel in the field of surveying, geotechnology and modern digital technologies with applied professional competencies necessary to solve production problems and effectively apply surveying technologies in the real sector of the economy.

4 EP Tasks

1. The readiness of specialists for design and analytical activities in the field of surveying and geospatial technologies, including the selection and application of modern measurement methods, data processing and digital tools for solving applied production tasks.

2. The readiness of specialists for production and technological activities aimed at the introduction and use of modern digital and surveying technologies in mining and related industries.

3. Willingness to promptly search, analyze and apply new information necessary for making engineering decisions, integrating interdisciplinary knowledge and participating in the company's production processes.

4. Readiness for professional communication in the engineering environment, reasoned presentation of technical solutions, participation in organizational and managerial activities and responsibility for the results of their professional work.

5. Willingness to develop independently, improve skills and adapt to technological changes

in the industry throughout their professional activities.

5 Risks of EP implementation (SWOT analysis)

S (strength) – strengths (potentially positive internal factors)	***W (weakness) – weaknesses (potentially negative internal factors)***
1. The university's brand is well-known and graduates are in high demand in the manufacturing sector. 2. A positive image in the educational services market of the Republic of Kazakhstan, confirmed by the stable demand for engineering specialties. 3. The widespread use of modern digital and interactive technologies in the educational process, providing practice-oriented learning. 4. The existence of academic integrity control systems that ensure transparency and quality of training. 5. Partnerships with leading industrial enterprises, scientific organizations and foreign universities, creating opportunities for internships and internships. 6. Modern material and technical base and high level of digitalization, allowing to simulate real production processes. 7. The growth and renewal of the classroom fund, equipped with specialized equipment and software complexes. 8. A sufficient amount of library and electronic resources, providing access to relevant professional resources. 9. Full provision of educational and methodological documentation on the disciplines of the OP, including practical and laboratory tasks. 10. Stable financial position of the university, which allows to support the development of infrastructure and educational services. 11. Teachers with experience in the production and engineering environment, proficient in modern technologies of the industry. 12. Conducting practical classes at the bases of the department's branches and industrial enterprises, ensuring a close link between training and real production. 13. Improving the qualification and professional level of teaching staff, focused on practical and engineering tasks of the industry.	1. Insufficient volume of practice-oriented applied projects implemented jointly with industrial enterprises, which reduces the opportunities for expanding production internships. 2. Limited availability of places in the dormitory, which may reduce the attractiveness of the program for nonresident students. 3. There is an insufficient list of licenses and permits for performing some specialized engineering and technical work, which limits the university's participation in production projects and industry orders. 4. Insufficient level of commercialization of applied engineering developments, which reduces the potential for interaction with the business sector.
O (opportunity) – favorable opportunities (potentially positive external factors)	***T (threat) – threats (potentially negative external factors)***

1. There is a high demand for qualified engineering personnel in the field of surveying and geotechnology from mining and related industries. 2. The possibility of introducing new applied courses and modules focused on modern technologies of monitoring, digitalization and automation of production processes. 3. Expanding career guidance and information work among bachelor's degree graduates, increasing interest in accelerated specialized training programs. 4. The developed industrial, financial, and socio-cultural environment of Almaty, which ensures a steady demand for engineering specialties and a wide range of employment opportunities. 5. Willingness of mining, metallurgical and industrial enterprises to cooperate with the university, providing places for production practices, internships and implementation of applied projects. 6. Stable demand for graduates of accredited specialized educational programs in the national and regional labor markets.	1. The increase in the cost of specialized surveying and geodetic equipment due to inflationary processes, which complicates its renewal and modernization. 2. Reducing the financial capacity of enterprises to invest in training, internships and corporate educational programs, which may limit the practical training of undergraduates. 3. The uneven level of digitalization and automation of production processes in enterprises, which affects the possibilities of introducing modern technologies in training. 4. The limited quality of the Internet infrastructure in a number of regions makes it difficult for nonresident students to use distance and digital learning technologies. 5. Insufficient training of some applicants in specialized disciplines and poor command of foreign languages, which can reduce the effectiveness of mastering modern digital and surveying technologies.

Long-term action plan for the development and improvement of the educational program

№	Event content	Responsible performers	Deadlines for execution
1	Study and analysis of the competitive environment, identifying opportunities of the department to enhance the image and attractiveness of the educational program for consumers of educational services (prospective students, current students, parents, business partners).	Head of the Department, teaching staff	2025-2029
2	Utilization of advanced marketing and digital technologies to promote distance education services.	Head of the Department, teaching staff	2025-2029
3	Strengthening career guidance activities and attracting prospective students through tripartite agreements.	Directorate, Head of the Department, teaching staff	2025-2029
4	Involving academic staff (teaching and research personnel) from among stakeholders in the educational	Head of the Department, teaching	2025-2029
5	Development and implementation of digital interactive learning formats, combining theoretical and practical teaching methods and approaches.	Head of the Department, teaching staff	2025-2029
6	Preparation of an educational program for specialized accreditation for compliance with education and agency quality standards	Head of the Department, teaching staff	2025-2029

7	Provision of all types of disciplines with textbooks, teaching aids, educational and methodical complexes with digital remote support, electronic educational materials, multimedia educational resources	SL, Head of the Department, teaching staff	2025-2029
8	Development and use of case databases, training thematic computer programs in the field of KiGP	Head of the Department, teaching staff	2025-2029
9	Conducting seminars and masterclasses, and mastering digital teaching formats with the involvement of IT. специалистов	Head of the Department, teaching staff	2025-2029
10	Development of new forms of independent student work, as well as electronic assessment materials for self-evaluation.	Head of the Department, teaching staff	2025-2029
11	Conducting seminars that involve student volunteer activities, as well as seminars and masterclasses aimed at enhancing knowledge and teaching methodologies, in collaboration with stakeholders, public foundations, non-governmental organizations, research institutes, and other universities.	Head of the Department, teaching staff	2025-2029
12	Development of a digital rating system for verifying students' knowledge, ensuring the accessibility of assessments	AA, DAD, Head of the Department, teaching	2025-2029
13	Ensuring the participation of faculty and students in inter-university and international conferences, as well as in competitions organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan.	Head of the Department, teaching staff	2025-2029
14	Development of scientific schools, integration of faculty members' own research into the teaching process in the methodology of teaching academic	Head of the Department, teaching staff	2025-2029
15	Effective positioning of scientific research in the intellectual property market	Head of the Department, teaching staff	2025-2029
16	Attraction of foreign scholars with a high h-index	Head of the Department, teaching	2025-2029
17	Development of the department's educational programs	DAD, Head of the	2025-2029
18	Regular professional development of faculty and students	HR, Head of the Department, teaching	2025-2029
19	Strengthening of material and technical resources	Directorate, Head of the Department	2025-2029
20	Internal and external academic mobility of faculty and students	Directorate, Head of the Department	2025-2029
21	Expansion of multilingual education	Directorate, Head of the Department	2025-2029
22	Development of MOOCs for academic disciplines and additional training	Directorate, Head of the Department	2025-2029

23	Submission of an application for the grant funding competition for scientific and scientific-technical projects.	Directorate, Head of the Department, teaching staff	2025-2029

Reviewed at the meeting of the Department of MSG Protocol №5 dated January 23, 2025y.

Head of MSG Department **Meirambek G.**

Appendix

The development plan of the EP with the specification of indicators of strategic planning, reflecting the analysis and assessment of risks, the implementation of activities depending on the identified risks, guarantees for achieving the planned results

№	Target indicators	Unit of measurement	Risks				
			2026-2027	2027-2028	Analysis and evaluation	Strategies	Guarantees
1	Percentage of employed graduates in the first year after graduation	%	90	95	Loss of connection with a graduate	Cooperation with stakeholders and business partners. Feedback from graduates.	Contact information with graduates, business partners, and stakeholders. Employment of graduates. Internal audit
2	Number of joint educational programs	Quantity	0	0	Organization analysis The educational process in foreign universities and the assessment of the possibility of creating a SOP.	Collaboration with national and international research centers, institutes, and universities. Involvement of highly qualified faculty in departmental activities. Development and implementation of additional assessment methods to evaluate key indicators of learning effectiveness. Development of an action plan for internal and external mobility of students and faculty.	Risk-oriented analysis (SWOT) of the implemented educational programs. Concluding agreements, approval and launch of educational programs, and admission of students to new programs. Internal audit.

3	Number of educational programs in English	Quantity	0	0	Insufficient English proficiency among faculty	Organization and delivery of English language courses for faculty at the university	Availability of international certificates assessing English language proficiency among faculty and students. Internal audit. Semi-annual and annual departmental reports.
4	Increase in student enrollment in distance education programs	Quantity	25	30	Poor awareness of applicants	To activate career guidance work. To intensify work on external and internal academic mobility of teaching staff using modern distance learning technologies	Digital resources of the university. Internal audit.
5	Development and implementation of educational, teaching materials reflecting the results of our own research and the best international practices	Quantity	4	6	Insufficient implementation of the results of research and development of teaching staff in the development of educational and teaching materials	To consider at the meeting of the department issues related to the development and implementation of teaching staff's own research in the field of teaching methods and to develop methodological guidelines for teaching academic subjects based on teaching staff's own research.	Teaching staff with high qualifications and extensive experience in scientific and pedagogical activities. F KazNITU 703-06. The annual plan of educational and methodical publications. Internal audit

6	The share of updating the scientific equipment fleet from the total number of scientific equipment, %*	Quantity	15	20	Increased cost of equipment due to inflationary costs	Opening and equipping of the scientific and educational laboratory in Geo-Information Engineering (GIE)	Conducting laboratory sessions in accordance with the curriculum of the educational program
7	Increase in protection documents and copyright certificates	Quantity	13	15	Insufficient patenting of faculty research results	Participation of faculty and students in grant competitions organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan	Patenting of scientific developments. Patent Department
8	Number of faculty with sufficient English proficiency for conducting research and educational activities	Quantity	3	3	Low English proficiency among senior faculty members	Organization and delivery of English language courses for senior faculty members at the university	Availability of international English language proficiency certificates among faculty and students
9	Share of degree-holding faculty involved in research and experimental design work, %	Quantity	76	78	The percentage of science funding in Kazakhstan is among the lowest in the world (0.13% of GDP).	Increase faculty participation in grant competitions organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan (MSHE RK).	Highly qualified faculty with substantial research experience.

10	Number of publications in scientific journals of the Republic of Kazakhstan recommended by COCSON, Ministry of	Quantity	9	12	14	Lack of and insufficient funding for scientific research	Increase faculty and student participation in research and student research activities (R&D and SRA).	Faculty with high qualifications and extensive experience in conducting research. Published scientific articles.
11	Number of ongoing research projects	Quantity	4	5	6	The percentage of science funding in Kazakhstan is among the lowest in the world (0.13% of GDP).	Increase faculty participation in grant competitions organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan	Faculty with high qualifications and extensive experience in conducting research.
12	Number of research outcomes implemented in the educational process	Quantity	4	5	6	Insufficient funding for scientific research	Development and integration of research results into the core disciplines of the curriculum.	Implementation report of research results in the educational process. Open classes.
13	Number of publications in international journals indexed in Scopus / WoS	Quantity	12	16	18	Insufficient funding for scientific research	Increase faculty participation in grant competitions organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan (MSHE RK).	Faculty with high qualifications and extensive experience in conducting research.

14	Percentage of faculty holding academic degrees (%)	%	71,5	73	75	Insufficient number of grants for the training of master's and doctoral students	Recruitment and employment of new staff who have successfully defended their master's and doctoral theses	Awarding of academic and scientific degrees to graduates. Internal audit.
15	Increase in the proportion of faculty and research staff who have undergone professional development domestically and abroad	%	90	95	98	Insufficient funding	Participation of faculty in the "Bolashak" competition, organization of professional development courses for faculty. Within the framework of the Industrial Advisory Board for the educational program, sign a Memorandum and jointly develop, with various associations, an action plan for the proper preparation of students for professional certification of the program.	Certificate of professional development. Internal audit.

Reviewed at the meeting of the Department of MSG Protocol №5 dated January 23, 2025y.

Head of MSG Department **Meirambek G.**