Mining and Metallurgical Institute named after O.A. Baikonurov
«Mine Surveying and Geodesy» department

EDUCATIONAL PROGRAM
7M07235 - «Mine surveying»

Code and classification of the field of education: **7M07 Engineering, Manufacturing and Civil engineering**
Code and classification of training areas: **7M072 Manufacturing and processing**
Group of educational programs: **M120 Mine surveying**
Level based on NQF: 7
Level based on IQF: 7
Study period: 1,5 years
Amount of credits: 90

Almaty 2025

Educational program 7M07235 – «Mine surveying» was approved at a meeting of the Academic Council of KazNRTU named after K.I.Satbayev.
Protocol №6 of 31.03.2025
Considered and recommended for approval at a meeting of the Educational and Methodological Council of KazNRTU named after K.I.Satbayev.
Protocol №2 of 12.03.2025

Educational program 7M07235 – «Mine surveying» developed by the academic committee in the direction of «Manufacturing and processing»

Full name	Academic degree/ academic title	Position	Place of work	Signature
Academic staff:				
Meirambek Guldana	PhD in Technical Sciences, Associate Professor	Head of Department of Surveying and geodesy	NPJSC «K.I. Satbayev Kazakh National Research Technical University»	
Zhakypbek Yryszhan	PhD, Associate Professor	Professor	NPJSC «K.I. Satbayev Kazakh National Research Technical University»	
Aitkazinova Shynar Kasymkanovna	PhD	Associate Professor	NPJSC «K.I. Satbayev Kazakh National Research Technical University»	
Employer:				
Mukhametov Yesen Serikovich	-	Acting Director	Almaty Regional Branch of RSE «GOSGRADCADASTR»	
Student:				
Iskakov Bolatbek Meirambekuly	-	1st year Doctoral Student	NPJSC «K.I. Satbayev Kazakh National Research Technical University»	

Table of contents

List of abbreviations and designations

Reduction	Full name
SU	Satbayev University
MSHE RK	Ministry of Science and Higher Education of the Republic of Kazakhstan
AS	Academic staff
EP	Educational program
WC	Working curriculum
GIS	Geographic information system
LOED	Learning outcomes of the educational program
BD	Basic discipline
PD	Profile discipline
TUC	The university component
CC	Component of choice
SDG	Sustainable Development Goals
TUN	The United Nations

The educational program "Surveying" contributes to the achievement of the priority Sustainable Development Goals (SDGs) approved by the United Nations through the training of highly qualified specialists with competencies in geospatial analysis, monitoring of the geotechnical condition of mining facilities, rational development of the subsoil and environmentally sound design. Graduates of the program play a key role in ensuring the sustainable and safe development of the mining industry, rational subsoil use, environmental protection and emergency prevention related to mining operations. The OP contributes to the achievement of the following SDGs:

SDG 4. Quality education is the formation of a sustainable system of high-quality, inclusive and affordable education that provides lifelong learning opportunities

SDG 9. Industrialization, innovation and infrastructure - the development of sustainable infrastructure and the introduction of scientific and technological innovations into the economy of the region and the country.

SDG 12. Responsible consumption and production is the development of a system of environmentally responsible consumption and production based on the principles of reduction, reuse and recycling.

SDG 13. Combating climate change – using geospatial technologies to monitor changes in the environment;

SDG 15. Conservation of terrestrial ecosystems is the monitoring and assessment of land use aimed at protecting and restoring natural ecosystems.

1. Description of the educational program

It is intended for the implementation of scientific and pedagogical training of masters in the educational program "Surveying" at Satbayev University.

2. The purpose and objectives of the educational program

Goal EP: training of highly qualified scientific, technical and engineering personnel in the field of surveying, geospatial digital technologies with a focus on the development of Master's competencies.

Tasks EP:

Task 1: The readiness of specialists for research and project work in the field of geodesy, cartography, geoinformatics, surveying and geospatial technologies, including in related fields related to the selection of necessary research methods, modification of existing and development of new methods based on a specific study.

Task 2: The readiness of specialists for production and technological activities that ensure the introduction of new digital developments at the local level.

Task 3: The readiness of specialists to search for and obtain new information necessary to solve professional tasks in the field of knowledge integration in relation to their field of activity, to actively participate in the activities of an enterprise or organization.

Task 4: The readiness of specialists for scientific, informational, ideological and problematic communications in the professional environment and in the audience of non-specialists with a clear and deep justification of their position, to engage in organizational, managerial and service activities, to be aware of the responsibility for making their professional decisions.

Task 5: The readiness of specialists for self-study and continuous professional development during the entire period of scientific or professional activity.

3. Requirements for the evaluation of learning outcomes of the educational program

Learning outcomes include knowledge, skills and competencies and are defined both for the educational program as a whole and for its individual modules, disciplines or tasks.

The main task at this stage is to select assessment methods and tools for all types of control, with the help of which it is possible to most effectively assess the achievement of planned learning outcomes at the discipline level.

4. Passport of the educational program

4.1. General information

№	Field name	Note
1	Code and classification of the field of education	7M07 Engineering, Manufacturing and Civil engineering
2	Code and classification of training directions	7M072 Manufacturing and processing
3	Educational program group	M120 Mine surveying
4	Educational program name	7M07235 Mine surveying
5	Short description of educational program	Designed for the implementation of scientific and pedagogical training of masters in the educational program "Surveying" at Satbayev University and developed within the framework of the direction "Geospatial digital Engineering"
6	Purpose of EP	Training of highly qualified scientific, technical and engineering personnel in the field of surveying, geospatial

		digital technologies with a focus on the development of Master's competencies
7	Type of EP	New EP
8	The level based on NQF	7
9	The level based on IQF	7
10	Distinctive features of EP	No
11	List of competencies of educational program	**General cultural competencies (CC)** **CC-1.** The ability to communicate effectively in Russian, Kazakh and a foreign language in a professional, academic and interdisciplinary environment. **CC-2.** Teamwork skills, effective interaction with colleagues, contractors and customer representatives. **CC-3.** The ability to make decisions in non-standard situations, critically comprehend problems and choose optimal solutions. **CC-4.** Self-organization, time management and professional planning, setting goals and achieving results. **General Professional Competencies (GPC)** **GPC -1**. Knowledge of the regulatory framework in the field of subsoil use, surveying, occupational safety and industrial safety. **GPC-2.** Mastery of geodetic and surveying measurement methods, including in difficult mountain conditions. **GPC-3.** Skills in collecting, analyzing, and visualizing geospatial information while monitoring mountain features. **GPC-4.** Application of remote sensing, GIS and 3D scanning methods in surveying practice. **GPC-5.** Understanding the environmental, legal, and engineering aspects of subsurface development and protection. **Professional Competencies (PC)** **PC-1.** Performing high-precision surveying measurements during open-pit and underground mining operations. **PC-2.** Conducting surveying control over deformations of the Earth's surface, buildings, structures and workings. **PC-3.** Creation of surveying and geotechnical documentation, digital plans, maps and 3D models. **PC-4.** Processing and interpretation of spatial and geophysical data in specialized software packages. **PC-5.** Participation in the design and provision of safe mining operations with surveying support. **PC-6.** Development and registration of surveying reports, participation in research and engineering activities. **Digital Competencies (DC)** **DC-1.** Ownership of software for data surveying: AutoCAD Civil 3D, Surfer, Micromine, ArcGIS, QGIS, Carlson, Agisoft, Maptek, etc. **DC-2.** Ability to work with digital terrain models, 3D scans, satellite images, GNSS and laser scanning data. **DC-3.** Knowledge of the basics of working with spatial information databases, data storage and exchange systems

		in surveying. **DC-4.** The use of cloud and web platforms, Web-GIS, as well as the integration of digital technologies into surveying practice.
12	Learning outcomes of educational program	1.To develop intercultural communication skills, the ability to effectively interact in an international professional environment, as well as the ability to carry out scientific research and participate in academic mobility. 2.To study the basics of economic thinking, develop leadership skills and the ability to adapt to changing environmental conditions, taking into account the specifics of management in the mining industry, including the specifics of surveying, production risks and technical infrastructure 3.To develop competencies in decision-making, taking into account psychological factors affecting the processes of interaction, teamwork and achievement of goals, as well as to learn practical skills in applying psychological methods to manage stress, improve professional stability and work efficiency at all levels of the organization. 4.Be able to develop plans and programs for the organization of innovative activities in the mining sector, as well as to understand the economic efficiency using professional automated systems in solving surveying tasks. 5.To carry out mining development planning and surveying control over the condition of mine workings, buildings, structures and the earth's surface at all stages of mining and protection of the subsoil, guaranteeing industrial and environmental safety. 6.To master the theoretical and practical methods of geometrization of minerals, taking into account the geological, structural and technological features of deposits. Develop the skills to assess reserves, structural heterogeneity and quality of raw materials based on a comprehensive analysis of exploration data.professional activity. 7.Be able to identify risks and deviations from regulatory requirements, as well as develop sound proposals to improve the efficiency and safety of mining operations. In the course of training, professional competencies are formed in the field of assessing the compliance of mining operations with established standards, as well as in the fields of analytics, documentation support and legal regulation. 8.Develop skills in analyzing scientific information, searching for patent data, and evaluating the novelty of developments. Master the competencies to put scientific ideas into practice, taking into account legal protection and commercialization of the results. 9.Master the skills of drafting technical documentation, assessing the degree of disturbance and the effectiveness of remediation. To develop competencies in the integration of surveying, environmental and engineering data for planning sustainable land use in post-operational territories.

		10.To master the methods of 3D modeling and interpolation for analyzing the quality and structure of deposits, as well as gaining experience in creating models and preparing project documentation. 11.Be able to apply remote sensing data processing and interpretation methods for mining industry tasks. To develop competencies in integrating remote sensing with GIS technologies for effective analysis of natural resources and sustainable development of territories.
13	Education form	Full-time
14	Period of training	1,5 years
15	Amount of credits	90
16	Languages of instruction	Russian, Kazakh
17	Academic degree awarded	Master of engineering and technology
18	Developers and authors	Department «Mine Surveying and Geodesy»

4.2. The relationship between the achievability of the formed learning outcomes according to the educational program and academic disciplines

№	Name of the discipline	Brief description of the discipline	Number of credits	Generated learning outcomes (codes)							
				LR1	LR2	LR3	LR4	LR5	LR6	LR7	LR8
Cycle of basic disciplines University component											
1	Foreign language (professional)	The purpose of the discipline is to acquire and improve competencies in accordance with trade standards of foreign education, capable of competing in the labor market, because through a foreign language, the future master gains access to academic knowledge, new technologies and modern information, allowing the use of a foreign language as a means of communication in the intercultural, professional and scientific activities of the future master.	2	v	v	v	v	v			
2	Management	To form a scientific understanding of management as a type of professional activity. Contents: Mastering the general theoretical principles of managing socio-economic systems; acquiring skills and abilities in practical problem-solving of managerial issues; studying global management practices and the specificities of Kazakhstani management; training in solving practical issues related to managing various aspects of organizational activities.	2	v	v	v	v	v			

3	Psychology of management	To acquire skills in making strategic and managerial decisions, taking into account the psychological characteristics of the individual and the team. Content: the modern role and content of psychological aspects in management activities, methods for improving psychological literacy, the composition and structure of management activities, both at the local and foreign levels, the psychological feature of modern managers.	2	v	v	v	v	v			
Cycle of basic disciplines Elective component											
4	Geometrization of the structural and qualitative characteristics of the deposit	Purpose: obtaining skills in geometrization of structural and qualitative indicators of a deposit or individual deposits. Contents: the study of the theoretical foundations and practical skills for solving problems and their graphical representation in various forms with the mandatory inclusion of patterns of placement of structural and qualitative indicators based on the geometrization of the subsoil and take into account the movement of mineral reserves, their loss and dilution; economically assess the completeness of mineral extraction; prepare surveying documentation for solving mining problems.	5	v		v					v
5	Geodetic methods of studying modern motion of	Purpose: to gain knowledge about modern geodesy methods for analyzing and monitoring movements and	5				v	v			

	deformation of the earth's surface	deformations of the Earth's surface. Contents: mastering the theoretical and practical aspects of geodetic measurements in the tasks of studying the movement of the Earth's surface (including ground-based instrumental and satellite methods), effectively solving the problems of processing and analyzing spatial data.									
6	Creativity, Innovation, Leadership, and Entrepreneurship	Goal: Mastering principles and methods of sustainable territorial development. Developing skills in integrated planning considering ecological, social, and engineering factors. Building typology. Regulatory requirements. Neighborhood design. Transport and communication. Landscaping. Environmental aspects. Engineering networks.	5				**v**	**v**			
7	Intellectual property and research	The purpose of this course is to provide undergraduates with the knowledge and skills necessary to understand, protect and manage intellectual property (IP) in the context of scientific research and innovation. The course is aimed at training specialists who can effectively work with IP, protect the results of scientific research and apply them in practice.	5				**v**	**v**			
8	Mathematical modeling of field indicators	Purpose: the goal is to form the ability to apply mathematical modeling methods in describing qualitative and quantitative indicators of the deposit. Contents: The discipline studies the	5								

		basic methods of mathematical modeling and their application in applied mining and geological sciences, the theory of mathematical modeling, which allows you to build models of field indicators and judge their adequacy; scientific approaches to modeling field indicators; the basics of mathematical thinking, the use of mathematical language.									
9	Monitoring the movement of rocks during underground mining	Purpose: to develop skills in monitoring and analyzing data on the movements of mountain ranges, forecasting possible dangerous situations and taking measures to prevent emergency events. Contents: mastering the theoretical foundations and practical methods of studying the process of movement of rocks and the earth's surface in ore deposits, organizing and conducting observations of the movement of a rock mass, studying fracturing and determining the strength properties of rocks, methods of monitoring during underground mining.	5				**v**				**v**
10	Gamification in Eco-Mining	Purpose: the study and application of gamification to enhance safety, sustainability and efficiency in environmental resource extraction. Contents: the study of the principles of gamification in the practice of ensuring environmental mining using elements of game design in non-gaming contexts. Innovative solutions are being considered to increase engagement,	5								

		motivation and productivity in the mining industry. The possibilities of using gamification are being applied to promote sustainable safe mining practices and optimize mining processes.									
11	Methodology of continuous career design in inclusive education	Objective: it is aimed at mastering the methodology of continuous quarry design in market conditions, taking into account existing and new methods of intensive construction, technical re-equipment, phased development of deposits, adjustments to the mining transportation system, reconstruction and operation of quarries.	5				**v**	**v**			
12	Sustainable development strategies	Purpose: To train graduate students in sustainable development strategies to achieve a balance between economic growth, social responsibility, and environmental protection. Content: Graduate students will study the concepts and principles of sustainable development, the development and implementation of sustainable development strategies, the evaluation of their effectiveness, and international standards and best practices. Cases and examples of successful sustainable development strategies are included.	5				**v**	**v**			
13	Mining audit	Purpose: to form the ability to critically analyze the state of mining production. Contents: the study of methods for analyzing the reliability of the technical reporting of a mining enterprise and the	5							**v**	**v**

		compliance of its activities with existing regulatory legal acts and technical requirements; the methodology in the development of recommendations for the elimination of violations revealed as a result of the analysis is considered.									
14	Mine survey in the reclamation of disturbed lands	Purpose: formation of the concept of the importance of restoration of disturbed lands in general for the biosphere and specific territories in particular, obtaining knowledge in the field of land reclamation, choosing the direction of reclamation and technologies for performing the main stages of disturbed lands. Content: as a result of studying the theoretical and practical foundations of restoration processes in land reclamation, environmental and economic aspects of protection and reclamation of disturbed territories. Development of skills in analyzing objects requiring reclamation and making effective decisions on their restoration.							v	v	v
Cycle of profile disciplines University component											
15	Laser scanning in quarries	Purpose: formation of theoretical knowledge and practical skills of methods and techniques of using laser scanning in order to obtain a three-dimensional copy of an object. Contents: the study of the use of a high-precision scanner device to reliably	5				v	v	v		

		obtain data on the volume of mining and create 3D models of the object.									
16	Mineral resources exploration and assessment	Purpose: the study of modern methods of exploration and evaluation of mineral resources, taking into account legal, economic and environmental aspects. Contents: the study of the technique of exploration and evaluation of mineral resources based on the analysis of geological formations, with the identification of potential resources of mineral deposits using advanced technology of mapping and resource assessment. Special attention is paid to the integration of geospatial data, remote sensing and software for geological modeling.	5			**v**	**v**				
17	Remote sensing of the Earth and natural resources	Purpose: the study of the theoretical foundations and practical skills of observing the Earth's surface by ground and remote methods. Contents: formation of remote sensing data processing skills using modern software, classification and interpretation of the results obtained, correct design of the results and preparation of accounting documentation.	4								
18	Monitoring of the state of surface buildings and construction during the construction and operation of the	Purpose: formation of theoretical knowledge and practical skills in the field of monitoring the condition of surface buildings and structures during the construction and operation of the subway in order to ensure their safe	5				**v**	**v**	**v**		

	underground	operation through solving scientific and industrial and technical problems. Contents: the study of theoretical and practical knowledge about the methods of monitoring buildings and structures during the construction and operation of the subway to ensure safe operating conditions and eliminate the possibility of damage to the city's infrastructure, surveying and geodetic surveys, geotechnical surveys and inspection of the technical condition of subway structures located in the zone of influence of the subway.									
19	Organization of scientific research	Purpose: the development of knowledge and skills among undergraduates and their acquisition of the necessary skills for conducting research and other purposes. Contents: the organization of scientific research based on the familiarization of undergraduates with scientific knowledge, the formation of readiness and ability to conduct research activities related to the selection of necessary research methods, conducting experimental research and analyzing their results, based on modern achievements of domestic and foreign scientists and opens the way to the introduction of new developments.	5					**v**	**v**	**v**	
20	Innovative surveying technology	Purpose: formation of knowledge, skills and ideas, modern methods and technologies necessary to solve	5								

		problems in underground and open-pit mining. Contents: the study of innovative technologies, determining the state of the earth's surface and subsurface with the display of information in accordance with modern regulatory requirements based on the use of modern software and technology for processing underground and aboveground measurements.									
21	Geospatial data visualization	The purpose of studying the discipline is to master the methods and concept of visual representation of spatial data of mountain objects obtained as a result of surveying, geodetic measurements for making managerial decisions. Content: visualization and representation methods for mountain objects; interactive approaches to isosurface contouring for geovisualization; interpretation of spatial analysis results; modeling of virtual environments for solving professional tasks.	4						v	v	v
Cycle of profile disciplines Component of choice											
22	WEB-GIS in subsurface use	Purpose: formation of skills for working with an array of vector, raster and attribute information using the most common foreign and domestic web GIS. Contents: the discipline is an alternative to the discipline of Web GIS and provides theoretical and practical knowledge about the concept and technical foundations of web GIS,	5			v	v				

		geoportals, meshes, mobile GIS. Develops skills in using web GIS technologies to create, manage, and analyze databases on deposits, subsurface use licenses, mineral reserves, infrastructures, etc. using ESRI products (ArcGIS online, server) and open resources (QGIS, Mapserver, Geoserver) as an example.									
23	WEB-GIS	Purpose: the study of theoretical and practical aspects of web GIS. Contents: formation of ideas and understandings about the concepts and technical foundations of web GIS; exploring the possibilities of web GIS technologies using ESRI products (ArcGIS online, server) and open resources (QGIS, Mapserver, Geoserver); geospatial web services, geoportals, meshes, mobile GIS, creating interactive online maps for solving problems in the field of geodesy, cartography, surveying.	5						v	v	
24	Resources modelling and evaluation	Purpose: mastering theoretical knowledge and practical skills in conducting modeling and analysis of resources. Contents: the study and application of modeling techniques for the assessment and management of mineral resources based on geological, geophysical and geochemical data in order to create predictive models of mineral deposits. Assessment of the quality and quantity of	5					v	v		

		mineral resources, based on statistical analysis and computer simulation for decision-making related to the exploitation of resources. Consideration of the methodology of uncertainty and risk analysis in order to improve the reliability of estimates and optimize resource allocation strategies.								

5. Curriculum of the educational program

SATBAYEV UNIVERSITY

«APPROVED»
Decision of the Academic Council
NPJSC«KazNRTU
named after K.Satbayev»
dated 31.03.2025 Minutes № 12

WORKING CURRICULUM

Academic year	2025-2026 (Autumn, Spring)
Group of educational programs	M120 - "Mine surveying"
Educational program	7M07235 - "Surveying business"
The awarded academic degree	Master of engineering and technology
Form and duration of study	full time (professional track) - 1,5 years

Discipline code	Name of disciplines	Block	Cycle	Total ECTS credits	Total hours	lek/lab/pr Contact hours	in hours SIS (including TSIS)	Form of control	Allocation of face-to-face training based on courses and semesters			Prerequisites
									1 course		2 course	
									1 sem	2 sem	3 sem	
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)												
CYCLE OF BASIC DISCIPLINES (BD)												
M-1. Модуль базовой подготовки (вузовский компонент)/Module of basic training (university component)												
LNG212	Foreign language (professional)		BD, UC	2	60	0/0/30	30	E	2			
MNG726	Management		BD, UC	2	60	15/0/15	30	E	2			
HUM211	Psychology of management		BD, UC	2	60	15/0/15	30	E	2			
MAP228	Geometrization of the structural and qualitative characteristics of the deposit	1	BD, CCH	5	150	30/0/15	105	E	5			MAP138
MAP727	Geodetic methods of studying modern motion of deformation of the earth's surface	1	BD, CCH	5	150	15/0/30	105	E	5			
MAP731	Creativity, Innovation, Leadership, and Entrepreneurship	1	BD, CCH	5	150	15/0/30	105	E	5			
MAP728	Mathematical modeling of field indicators	2	BD, CCH	5	150	15/0/30	105	E	5			
MNG781	Intellectual property and research	2	BD, CCH	5	150	30/0/15	105	E	5			
MAP729	Monitoring the movement of rocks during underground mining	2	BD, CCH	5	150	15/0/30	105	E	5			
MAP732	Gamification in Eco-Mining	2	BD, CCH	5	150	15/0/30	105	E	5			
MIN220	Methodology of continuous career design in inclusive education	2	BD, CCH	5	150	30/0/15	105	E	5			
MNG782	Sustainable development strategies	1	BD, CCH	5	150	30/0/15	105	E		5		
MAP230	Mining audit	1	BD, CCH	5	150	30/0/15	105	E		5		MAP138
MAP726	Mine survey in the reclamation of disturbed lands	1	BD, CCH	5	150	15/0/30	105	E		5		
CYCLE OF PROFILE DISCIPLINES (PD)												
M-2. Module of professional activity (university component, component of choice)												
MAP245	Laser scanning in quarries		PD, UC	5	150	30/0/15	105	E	5			MAP138
MAP733	Mineral resources exploration and assessment		PD, UC	5	150	15/0/30	105	E	5			
MAP265	Remote sensing of the Earth and natural resources		PD, UC	4	120	15/0/30	75	E	4			
MAP255	Monitoring of the state of surface buildings and construction during the construction and operation of the underground		PD, UC	5	150	30/0/15	105	E		5		
MAP238	Organization of scientific research		PD, UC	5	150	30/0/15	105	E		5		MAP138
MAP269	Innovative surveying technology		PD, UC	5	150	15/0/30	105	E		5		
MAP710	WEB-GIS	1	PD, CCH	5	150	15/0/30	105	E		5		
MAP711	WEB-GIS in subsurface use	1	PD, CCH	5	150	15/0/30	105	E		5		
MAP735	Resources modelling and evaluation	1	PD, CCH	5	150	15/0/30	105	E		5		
MAP272	Geospatial data visualization		PD, UC	4	120	15/0/15	90	E			4	
M-3. Practice-oriented module												
AAP248	Internship		PD, UC	5				R		5		

M-4. Experimental research module												
AAP240	Experimental research work of a master student, including an internship and the implementation of a master's project		ERWMS	18				R			18	
M-5. Module of final attestation												
ECA213	Design and defense of the master's project		FA	8							8	
Total based on UNIVERSITY:									30	30	30	
									60		**30**	

Number of credits for the entire period of study

Cycle code	Cycles of disciplines	Credits			
		Required component (RC)	University component (UC)	Component of choice (CCH)	Total
GED	Cycle of general education disciplines	0	0	0	0
BD	Cycle of basic disciplines	0	6	15	21
PD	Cycle of profile disciplines	0	38	5	43
Total for theoretical training:		**0**	**44**	**20**	**64**
RWMS	Research Work of Master's Student				0
ERWMS	Experimental Research Work of Master's Student				18
FA	Final attestation				8
TOTAL:					**90**

Decision of the Educational and Methodological Council of KazNRTU named after K.Satpayev. Minutes № 5 dated 12.03.2025

Decision of the Academic Council of the Institute. Minutes № 5 dated 23.01.2025

Signed:

Governing Board member - Vice-Rector for Academic Affairs	Uskenbayeva R. K.
Approved:	
Vice Provost on academic development	Kalpeyeva Z. B.
Head of Department - Department of Educational Program Management and Academic-Methodological Work	Zhumagaliyeva A. S.
Director - Mining and Metallurgical Institute named after O.A. Baikonurov	Ryabekov K. .
Department Chair - Surveying and geodesy	Meirambek G. .
Representative of the Academic Committee from Employers ____Acknowledged____	Mukhametov Y.