

Report on the work of the dissertation Council

Dissertation Council on metallurgy and materials science at the Kazakh national research technical University named after K. Satbayev on specialties (direction of training):

- 6D070700 – «Mining» (8D07203 – «Mining engineering»);
- 6D071100 – «Geodesy»(8D07306 –«Geospatial digital engineering»)

1. Data on the number of meetings held – 7 meetings.

Surnames, first name, patronymic (if any) of the members of the dissertation Council who attended less than half of the meetings: the overwhelming majority of the members of the council attended more than half of the meetings.

2. List of doctoral students indicating the organization of training:

- Toktaruly Bakytzhan – KazNRTU named after K. Satbayev;
- Shakenov Aman Tulegenovich – KazNRTU named after K. Satbayev;
- Omirgali Armanbek Kasymuly – KazNRTU named after K. Satbayev;
- Azhar Ormambekova – KazNRTU named after K. Satbayev;
- Sailygarayeva Mariya Altynbekovna – KazNRTU named after K. Satbayev;
- Kamza Anzhelika Talasovna – KazNRTU named after K. Satbayev;
- Yerzhankyzy Ainur – KazNRTU named after K. Satbayev.

3. Brief analysis of dissertations considered by the Council during the reporting year

№	Full name of the doctoral student	Topics of work	Code and title of specialty
1	Toktaruly Bakytzhan	Intensification of underground uranium leaching using various reagents	8D07203 «Mining engineering»
2	Shakenov Aman Tulegenovich	Assessment of the quality of in-pit roads and ways to improve them using digital technologies	8D07203 «Mining engineering»
3	Omirgali Armanbek Kasymuly	Development of a technology for flushing sorbent during in-situ leaching of uranium using the cavitation effect	8D07203 «Mining engineering»
4	Ormambekova Azhar Ermekovna	Development and improvement of methods of automated geodetic control of deformations of high-rise buildings	6D071100 – «Geodesy»
5	Sailygarayeva Mariya Altynbekovna	Development of a methodology of geodetic monitoring of deformation processes and technical condition of high-rise and unique buildings and structures	8D07306 – «Geospatial digital engineering»

6	Kamza Anzhelika Talasovna	Improving the method of monitoring ice movement in the caspian sea using remote sensing methods	6D071100 «Geodesy»
7	Yerzhankyzy Ainur	Development of methodology and technology for creating digital terrain models (DTM) in road design and reconstruction	6D071100 – Geodesy

4 The analysis of the subject of work of – Toktaruly Bakytzhan « Intensification of underground uranium leaching using various reagents», submitted for the Ph.D in specialty 8D07203 – «Mining».

Dissertation work of a doctoral candidate of KazNTU named after K.I. Satpaeva Toktaruly Bakytzhan is devoted to the development of a technology for air injection and oxygen saturation of leaching solution using a Venturi injector tube. It is distinguished by creating zones with different solution pressures inside the injector, which enhances the transfer of oxygen from gaseous to liquid phase. Dependencies of oxygen concentration in the solution on the velocity and volume of the leaching solution were obtained, allowing to determine the maximum possible oxygen concentration in the solution under various volumes of supplied solution in production conditions. Dependencies of the concentration of divalent and trivalent iron and uranium content in the productive solution on leaching time and distance of leaching solution transportation after oxygen saturation were also obtained. Based on the conducted work, tasks related to the development of a technology for saturating the leaching solution to increase the uranium content in the productive solution and reduce the uranium reserve mining period were successfully solved.

Analysis of the level of implementation of the thesis results in practice.

During the period of the work, 4 scientific articles and reports were published, including: 2 articles - in international scientific journals with Q1 and Q2 quartiles, included in the Scopus database;

The analysis of the subject of work of – Shakenov Aman Tulegenovich « Assessment of the quality of in-pit roads and ways to improve them using digital technologies», submitted for the Ph.D in specialty 8D07203 – «Mining».

Dissertation work of a doctoral candidate of KazNTU named after K.I. Satpaeva Shakenov Aman Tulegenovich is dedicated to the development of technology for increasing the energy efficiency of the operation of mining and transport equipment by ensuring quality control of the condition of in-pit haul roads, allowing for prompt management decisions and drawing up forecast measures to achieve rational parameters for the efficiency of open-pit mining.

Based on the work performed, problems related to the development of technology that makes it possible to predict the rate of development of identified defects in mine haul roads in real time were successfully solved. This ensures a reduction in the level of load on the metal structures of dump trucks and helps to increase the energy efficiency of mining transport vehicles.

Analysis of the level of implementation of the thesis results in practice.

During the period of the work, 9 scientific articles and reports were published, including: 1 articles - in international scientific journals with 41 percentile, included in the Scopus database, 1 patent for invention;

4 The analysis of the subject of work of – Omirgali Armanbek Kasymuly « Development of a technology for flushing sorbent during in-situ leaching of uranium using the cavitation effect», submitted for the Ph.D in specialty 8D07203 – «Mining».

Dissertation work of a doctoral candidate of KazNTU named after K.I. Satpaeva Omirgali Armanbek Kasymuly, is devoted to the development of sorbent denitration technology to increase the efficiency of ionite regeneration using the cavitation effect of a washing solution during the

processing of a productive solution of underground borehole uranium leaching.

Based on the work performed, the tasks related to the development of a technology that allows to increase the rate of denitration of the sorbent, reduce the consumption of chemical reagents during sorbent regeneration and increase the productivity of the maintenance staff of the processing site of productive solutions were successfully solved. This ensures a reduction in operating costs for processing productive solutions and contributes to an increase in the efficiency of the processing complex's technological equipment.

Analysis of the level of implementation of the thesis results in practice.

During the period of the work, 10 scientific articles and reports were published, including:
1 articles - in international scientific journals with 53 percentile, included in the Scopus database,
3 articles – in a domestic or foreign scientific publication recommended by the KOKNVO;

4 The analysis of the subject of work of – Azhar Ormambekova «Development and improvement of methods of automated geodetic control of deformations of high-rise buildings», submitted for the Ph.D in specialty 6D071100 – «Geodesy».

Dissertation work of the doctoral student of KazNRTU named after K.I. Satpayev Azhar Ormambekova is devoted to the development of a method of monitoring high-rise buildings based on the use of non-metric cameras and QR-targets with the integration of global navigation satellite systems. The developed method demonstrated the possibility of performing automated deformation control with the required accuracy. Experimental studies confirmed the stability of the results of the phase correlation method used to determine the displacements between image pairs. The application of the proposed methodology for monitoring deformations of high-rise buildings opens new perspectives for further research and application of automated geodetic control systems in the construction industry, especially in the context of smart building solutions for automatic detection of unacceptable displacements and deformations of structures.

Analysis of the level of implementation of the thesis results in practice.

During the period of the work, 13 scientific articles and reports were published, including:
2 articles - in international scientific journals with percentile of 79% and 53%, included in the Scopus database;

4 The analysis of the subject of work of – Sailygarayeva Mariya Altynbekovna « Development of a methodology of geodetic monitoring of deformation processes and technical condition of high-rise and unique buildings and structures», submitted for the Ph.D in specialty 8D07306 – «Geospatial digital engineering».

The dissertation work of the doctoral student of KazNITU named after K.I. Satpayev Sailygaraeva Maria Altynbekovna is devoted to the development and testing of methods for monitoring and assessing the technical condition of unique buildings and structures, building predictive models of displacements of load-bearing structures based on geodetic measurements, taking into account the spatio-temporal interaction of objects with the geological and seismic environment with values of the energy class of an earthquake $K = 6-7.5$ in the area of possible underground vibrations with an intensity of 3-4 points. Based on the work performed, an improved technique for geodetic observations of vertical displacements in a monolithic wall of a residential building is proposed by placing deformation marks along the perimeter of the wall at a distance of 0.30-0.60 m from the junction of the vertical and horizontal surfaces. A mathematical method is proposed for predicting displacements in individual sections of the perimeter of a structure, taking into account the spatiotemporal interaction of objects with the geological and seismic environment with earthquake energy class values of $K=6-7.5$ in the area of possible underground vibrations with an intensity of 3-4 points.

Analysis of the level of implementation of the thesis results in practice.

During the period of work, 10 scientific articles and reports were published, including: 1 article in an international scientific journal with quartile Q2, included in the Scopus database, 3 articles in journals recommended by the Committee for Quality Assurance in Education of the

Ministry of Education of the Republic of Kazakhstan, 6 articles in the materials of international scientific and practical conferences

4 The analysis of the subject of work of – Kamza Anzhelika Talasovna "Improving the Methodology for Monitoring Ice Movement in the Caspian Sea by Remote Sensing Methods", submitted for the degree of Doctor of PhD in the specialty 6D071100 - "Geodesy" Dissertation of the doctoral student of KazNITU named after K.I. Satpayev Kamza Anzhelika Talasovna on the topical issue of monitoring ice movement in the Caspian Sea by remote sensing methods. Each new area of exploration work on hydrocarbon deposits poses increasingly complex challenges for oil companies. The Northern Caspian is no exception. This region has a number of unique features that largely determine not only the drilling program, but also many aspects of the design and operation of offshore structures. Based on the work performed, the tasks were successfully solved, an analysis of existing methods and data for monitoring sea ice movements was performed, the technology for mapping the coastline to determine the area of ice cover was improved using a geospatial analysis model, a controlled classification method for detecting ice massifs based on remote sensing data was optimized, and geospatial analysis models were developed to predict ice movement based on Earth remote sensing data.

Analysis of the level of implementation of the thesis results in practice.

During the period of work, 8 publications were published, including 1 article published in the Scopus/Web of Science database (percentile 71), 3 articles in the publication recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan, 1 article published in other scientific journals and publications, 3 articles published at international scientific and practical conferences.

4 The analysis of the subject of work of – Yerzhankyzy Ainur Development of methodology and technology for creating digital terrain models (DTM) in road design and reconstruction », submitted for the Ph.D in specialty 6D071100 – Geodesy

Dissertation work of a doctoral candidate of KazNTU named after K.I. Satpaeva Yerzhankyzy Ainur is dedicated to the development of methods and technologies for creating digital terrain models (DTMs) in the design and reconstruction of highways. A distinctive feature of this work is the application of integrated aerial survey methods using unmanned aerial vehicles (UAVs) and terrestrial laser scanning, which ensures high accuracy and detailed geospatial data.

Within the framework of the research, dependencies of the accuracy of initial geospatial data on flight altitude and survey methods were established, enabling the determination of optimal parameters for creating digital terrain models, taking into account the specifics of the designed area. Mathematical modeling algorithms have been developed to produce high-precision digital terrain models that comply with construction standards and requirements.

The results obtained contribute to improving the quality of design and reducing the time required for road infrastructure reconstruction. The proposed approaches minimize errors during construction work and automate geodetic control processes. The developed technology for integrating data from UAVs and laser scanning reduces data collection time and ensures high detail.

Analysis of the level of implementation of the thesis results in practice.

During the period of the work, 9 scientific articles and reports were published, including: 1 article - in international scientific journals with Q2 quartiles, included in the Scopus database;

5. Analysis of the work of official reviewers (with examples of the most low-quality reviews)

Full name of	Reviewers
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№	the doctoral student	Full name of the first reviewer (position, academic degree, title, number of publications in the specialty for the last 3 years)	Full name of the second reviewer (position, academic degree, title, number of publications in the specialty for the last 3 years)
1	Toktaruly Bakytzhan	Muzgina Vera Sergeyevna - Doctor of Technical Sciences, Academician of MAEN, Senior Researcher at CIFRA-ASIA companies;	Bagasharova Zhenisgul Telmanovna - Candidate of Technical Sciences, Leading Specialist of the Department for the Development of Scientific and Technical Competencies at the Republican State Enterprise "National Center for Complex Processing of Mineral Raw Materials of the Republic of Kazakhstan"
2	Shakenov Aman Tulegenovich	Sapakov Ermek Akbarovich - Director of the mining design company LLP "Lozman", Doctor of Technical Sciences, Professor	Muzgina Vera Sergeyevna - Doctor of Technical Sciences, Academician of MAEN, Senior Researcher at CIFRA-ASIA companies;
3	Omirgali Armanbek Kasymuly	Muzgina Vera Sergeyevna - Doctor of Technical Sciences, Academician of MAEN, Senior Researcher at CIFRA-ASIA companies;	Bagasharova Zhenisgul Telmanovna - Candidate of Technical Sciences, Head of the Department for the Development of Scientific and Technical Competence of the RSE "NCPMS RK".
4	Ormambekova Azhar Ermekovna	Sarybaev Yedil - PhD, Acting Associate Professor of the Department of Cartography and Geoinformatics at the Kazakh National University named after Al-Farabi	Altaeva Assel Abdikerimkyzy - PhD, Head of the Laboratory "Management of geomechanical processes", D.A.Kunaev Mining Institute.
5	Sailygarayeva Mariya Altynbekovna	Umirbaeva Aliya Batukhanovna - PhD, Deputy Dean for Academic Affairs, Associate Professor of International Educational Corporation LLP	Kurmanbaev Olzhas Seitbotanovich - PhD, Acting Associate Professor of the Department of Cartography and Geoinformatics of the Kazakh National University named after Al-Farabi
6	Kamza Anzhelika Talasovna	Sarybaev Yedil - PhD, Acting Associate Professor of the Department of Cartography and Geoinformatics at the Kazakh National University named after Al-Farabi	Altaeva Assel Abdikerimkyzy - PhD, Head of the Laboratory "Geomechanical Process Management," D.A. Kunaev Institute of Mining, Almaty, Kazakhstan.
7	Yerzhankyzy Ainur	Altaeva Assel Abdikerimkyzy - PhD, Head of the Laboratory "Geomechanical Process Management," D.A. Kunaev Institute of Mining, Almaty, Kazakhstan.	Kurmanbayev Olzhas Seitbotanovich - PhD, Acting Associate Professor of the Department of "Cartography and Geoinformatics," Al-Farabi Kazakh National University. Specialty: 6D071100 - Geodesy.

All reviewers have research experience, published works in the areas of dissertations and meet the requirements.

6 Proposals for further improvement of the system of training scientific personnel. Increase the requirements for the work of scientific consultants (especially from Kazakhstan) doctoral students in terms of the proposed topics of dissertation research and their leadership in the training of scientific personnel.

7 Data on the considered dissertations for the degree of doctor of philosophy PhD, doctor of profile

Dissertation Council	Code and title of specialty	Code and title of specialty
	6D070700 – «Mining» (8D07203 – «Mining engineering»)	6D071100 – «Geodesy» (8D07306 – «Geospatial digital engineering»)
Dissertations accepted for defense	3	4
Including doctoral students from other universities	-	-
Dissertations withdrawn from consideration	-	-
Including doctoral students from other universities	-	-
Dissertations that received negative reviews from reviewers	-	-
Including doctoral students from other universities	-	-
Dissertations with a negative decision on the results of the defense	-	-
Including doctoral students from other universities	-	-
Dissertations aimed at completion	-	-
Including doctoral students from other universities	-	-
Dissertations aimed at repeated defense	-	-
Including doctoral students from other universities	-	-

**Deputy Chairman
of the Dissertation Council
on Mining and Geodesy,
doctor of technical sciences
Academician of the NAS of RK**



B. Rakishev

**Scientific Secretary
of the dissertation Council
on Mining and Geodesy,
candidate of Technical Sciences**

G.Meiramбек