

## **REPORT**

### **about the work of the dissertation council**

Dissertation Council in the direction «8D015 - Training of teachers in natural sciences (6D010900 / 8D01501 - Mathematics, 6D011000 / 8D01504 - Physics)»  
at the Abai Kazakh National Pedagogical University

#### **1. Data on the number of meetings held.**

The dissertation council held 4 meetings in the reporting year (from 02.01.2023 to 30.12.2023).

#### **2. Surname, name, patronymic (if any) of the members of the dissertation council who attended less than half of the meetings.**

There are no board members who attended less than half of the meetings.

#### **3. List of doctoral students indicating the organization of training.**

1) Kalybekova Zhanar Abdykhalievna, Abai Kazakh National Pedagogical University;

2) Zhussipbekova Sholpan Erlepesovna, Abai Kazakh National Pedagogical University;

3) Abdraimov Rakhymzhan Turisbekovich, International Kazakh-Turkish University Khoja Ahmed Yasawi;

4) Ardabayeva Almagul Kairbayevna, Abai Kazakh National Pedagogical University.

#### **4. A brief analysis of dissertations reviewed by the council during the reporting year, highlighting the following sections:**

##### **According to the dissertation of Kalybekova Zhanar Abdykhalievna:**

*1) analysis of the topics of the considered works:*

*Dissertation topic* – Methodological features of professional teaching of mathematics in student technical universities.

*Specialty:* 8D01501 – Mathematics.

*Scientific consultants* – Academician of NAS of RK, Doctor of Pedagogical Sciences, Professor Abylkasymova A.Y.; Doctor of Physics and Mathematics, Professor Smirnov V.A.

*The defense took place on May 30, 2023.*

*The following new and reliable results were obtained in the work:*

– the current state of professionally oriented training of students of technical universities has been studied;

– analyzed the content of educational programs in mathematics of various technical specialties;

– an analysis of the problem of professionally oriented teaching of mathematics with a focus on the future profession was carried out;

– the structure and content of differentiated teaching of mathematics to



students of different specialties of technical universities has been identified;

– a methodology for organizing professionally oriented mathematics training for students - future engineers was developed and their effectiveness was tested during experimental work.

*2) the connection of the topics of dissertations with the directions of development of science, which are formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and (or) state programs.*

The topic of the dissertation and the main ideas of the research by Kalybekova Zh.A. meet the requirements aimed at solving the priorities and tasks specified in the Law of the Republic of Kazakhstan “On Education”; Concepts for the development of higher education and science in the Republic of Kazakhstan for 2022–2026; national project “Quality Education “Educated Nation”; Address of the Head of State to the people of Kazakhstan dated September 1, 2021 “The unity of the people and systemic reforms are a solid basis for the country’s prosperity”; The State Compulsory Standard of Higher Education of the Republic of Kazakhstan and other state regulatory documents regarding the development of the Kazakhstan education system and improving the quality of training of competitive specialists.

*3) analysis of the level of implementation of the results of dissertations in practice.*

The content of a mathematics course was designed, aimed at mastering the key and subject competencies necessary for future professional activity for students of the following specialties:

- 6B07311 - Architecture of residential and public buildings;
- 6B07312 - Urban planning;
- 6B07321 - Calculation and design of buildings and structures;
- 6B07322 - Technology of industrial and civil construction;
- 6B07323 - Design and installation of metal structures;
- 6B07324 - Economics and management in construction;
- 6B07352 - Water supply and sewerage;
- 6B07351 - Heat and gas supply and ventilation;
- 6B07361- Production of building materials and products and structures;
- 6B07371 - Geodesy and cartography;
- 6B07501 – Cadastre;
- 6B07211 - Technology of woodworking and wood products (by area of application).

A methodology has been developed for organizing professionally oriented mathematics training for students - future engineers of technical universities. The content of the disciplines “Mathematics-1” and “Mathematics-2” ensures the implementation of mathematics teaching in technical universities and is focused on the applied orientation of the disciplines in the future professional activities of future engineers. A laboratory workshop has been developed for students to perform independent work using the Geogebra program. Methodological recommendations and computer software for teaching mathematics in technical



universities are proposed.

**According to the dissertation of Zhussipbekova Sholpan Erlepesovna:**

*1) analysis of the topics of the considered works:*

*Dissertation topic* – Methods of teaching the discipline «Fundamentals of electrical engineering and electronics» in higher medical educational institutions.

*Specialty:* 6D011000 – Physics.

*Scientific consultants* – Candidate of Pedagogical Sciences, Associate Professor Sydykova Zh.K.; Doctor of Pedagogical Sciences, Professor Babaev D.B.

*The defense took place on May 30, 2023.*

*The following new and reliable results were obtained in the work:*

– the structure and content of the discipline “Fundamentals of Electrical Engineering and Electronics” of the educational program “6B07201 – Pharmaceutical Production Technology”, its interdisciplinary connections with physics, basic and specialized disciplines in the individual educational trajectory have been determined;

– methods for organizing practical classes and independent work in the discipline “Fundamentals of Electrical Engineering and Electronics” are presented;

– a methodology has been developed for training future specialists in pharmaceutical production technology in the basics of electrical engineering and electronics, and its effectiveness has been tested through a pedagogical experiment.

*2) the connection of the topics of dissertations with the directions of development of science, which are formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and (or) state programs.*

The topic of the dissertation work by Zhussipbekova Sh.E. related to the implementation of the Law of the Republic of Kazakhstan “On Education”; a comprehensive plan for the development of the pharmaceutical and medical industry for 2020-2025; State Compulsory Standard of Higher Education of the Republic of Kazakhstan; educational programs “6B07201 – Pharmaceutical Production Technology” of medical universities; curricula and textbooks for medical higher educational institutions in the discipline “Fundamentals of Electrical Engineering and Electronics”; normative and legal documents of the higher education system, which fully allows for the implementation of subjective ideas in education. These paths are considered by the dissertation author as guidelines that contribute to the sustainable development of training specialists in pharmaceutical production technology in medical higher education institutions.

*3) analysis of the level of implementation of the results of dissertations in practice.*

A methodology for training future specialists in pharmaceutical production technology in the discipline “Fundamentals of Electrical Engineering and Electronics” has been developed, video lectures, methods for organizing practical classes and independent work in the discipline “Fundamentals of Electrical Engineering and Electronics” have been developed, which have been uploaded to



the YouTube channel of KazNMU named after. S.Zh.Asfendiyarova; an electronic textbook on the discipline “Electrical engineering and electronics” was published and introduced into the educational process. *Electrons oku kuraly.* – Almaty, 2021. – S.Zh. Pharmacy mektebi studentterine arnalgan oku kuraly. – Almaty, 2022.– 264b.

**According to the dissertation of Abdraimov Rakhymzhan Turisbekovich:**

*1) analysis of the topics of the considered works:*

*Dissertation topic* – Methods of specialized teaching of high school students electricity and magnetism in the course of physics.

*Specialty:* 6D011000 – Physics.

*Scientific consultants* – Doctor of Physical and Mathematical Sciences, Associate Professor Turmambekov T.A.; PhD Ualikhanov B.S.; Doctor of Physical and Mathematical Sciences, Professor Vintaikin B.E.

*The defense took place on October 6, 2023.*

*The following new and reliable results were obtained in the work:*

- the content of specialized training at the level of general secondary education, its significance and features of directions during implementation have been determined;

- the content features of teaching a physics course in high school, the didactic and methodological principles that determine the content, organizational forms and methods of the educational process in physics, continuity with intra-subject and university content and the structural-content-procedural system for the development of specialized teaching in physics are determined;

- a methodology for teaching the section “Electricity and Magnetism” in a physics course and a methodology for organizing the optional course “Applied Electrodynamics” for students in grades 10-11 of science and mathematics have been developed, its effectiveness has been tested through a pedagogical experiment.

*2) the connection of the topics of dissertations with the directions of development of science, which are formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and (or) state programs.*

The topic of the dissertation and the leading ideas of the research Abdraimova R.T. meet the requirements aimed at solving the priorities and tasks specified in the Law of the Republic of Kazakhstan “On Education”; state mandatory standards of all levels of education of the Republic of Kazakhstan; national project “Quality Education “Educated Nation”; Concept for the development of preschool, secondary, technical and vocational education of the Republic of Kazakhstan for 2023-2029; standard curriculum for the academic subject “Physics” for 10-11 grades of natural and mathematical direction at the level of general secondary education and other state regulatory documents regarding the development of the Kazakhstan education system and improving the quality of training of competitive specialists.

*3) analysis of the level of implementation of the results of dissertations in*



*practice.*

A teaching methodology for the section “Electricity and Magnetism” in a physics course for students in grades 10-11 of natural and mathematical studies has been developed, active methods, forms and means of teaching (short lectures, physical problems, experimental tasks (laboratory and practical work), the possibilities of using digital technologies, methodological recommendations for organizing the elective course “Applied Electrodynamics” were developed, a textbook for the elective course “Applied Electrodynamics” was published and introduced into the educational process for students in grades 10-11 of the natural and mathematical direction (Shymkent, 2022.–120 pp.). The results of the study are recommended to be used to improve the content and methodology of specialized teaching of physics in high school.

**According to the dissertation of Ardabayeva Almagul Kairbayevna:**

*1) analysis of the topics of the considered works:*

*Dissertation topic* – Methodical features of teaching the course of geometry in secondary school in conditions of updating the content of education.

*Specialty:* 6D010900 – Mathematics.

*Scientific consultants* – Academician of NAS of RK, Doctor of Pedagogical Sciences, Professor Abylkasymova A.Y.; Candidate of Pedagogical Sciences, Associate Professor Tuyakov Y.A.; Doctor of Physics and Mathematics, Professor Smirnov V.A.

*The defense took place on December 14, 2023.*

*The following new and reliable results were obtained in the work:*

- the place and significance of geometric education in the school mathematics course, the stages of its formation, the structure and content features of the geometry course in secondary school have been identified;

- the continuity and interdisciplinary connection of teaching a geometry course at the level of basic secondary and general secondary education in the conditions of updated content of school education has been identified;

- teaching methods and forms of organizing the educational process in geometry are shown, the possibility of using computer programs is shown, methods are developed for teaching students to solve geometric problems in different ways in the context of updated educational content.

*2) the connection of the topics of dissertations with the directions of development of science, which are formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and (or) state programs.*

The topic of the dissertation and the main ideas of the research by Ardabaeva A.K. meet the requirements aimed at solving the priorities and tasks specified in the Law of the Republic of Kazakhstan “On Education”; national project “Quality Education “Educated Nation”; Concept for the development of preschool, secondary, technical and vocational education in the Republic of Kazakhstan for 2023-2029; state compulsory standards of basic secondary and general secondary education; standard curriculum for the academic subject “Geometry” for grades 7-



9 and 10-11 and other state regulatory documents regarding the development of the Kazakhstan education system.

3) *analysis of the level of implementation of the results of dissertations in practice.*

Methods for teaching geometry in high school have been developed, means and forms of organizing students' educational activities in the process of teaching a geometry course in the conditions of updated content of school education have been determined, and a methodology has been developed for teaching students to solve geometric problems in different ways. Methodological recommendations have been developed for the use of computer programs in explaining educational material in geometry lessons and in the process of teaching students to solve geometric problems. A system of tasks and assignments has been developed aimed at developing students' functional literacy. A collection of problems for the 9th grade geometry course based on the updated educational content has been introduced into the educational process. Methodological recommendations for organizing students' educational activities in the process of teaching a geometry course can be effectively used by mathematics teachers in their practice.

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

Reviewers approved scientists who made a significant contribution to research in the field of mathematics and physics, theory and methods of teaching mathematics and physics. When selecting reviewers, the principle of independence of scientific consultants and reviewers was observed.

The reviewers' reviews noted the correspondence of the dissertation topics with the directions of scientific development and/or government programs and their importance for science; principles of independence, internal unity and scientific novelty; validity of the main conclusions; main provisions submitted for defense; principles of reliability of sources and information provided, their practical value, quality of writing and presentation of the dissertation; comments and suggestions on dissertations were given. The comments concern individual shortcomings that do not affect the overall scientific and theoretical content and practical results of the study. There were no negative reviews on the dissertation.

#### **Information according to the reviewers of the dissertation Kalybekova Zh.A.:**

*Kulpeshov Beibut Shaiykovich* – Doctor of Physical and Mathematical Sciences, Professor, Kazakh-British Technical University (*specialty code: 01.01.06*).

*Chugunova Anna Aleksandrovna* – Candidate of Pedagogical Sciences, Senior Lecturer, M. Kozybaev North Kazakhstan University (*specialty code: 13.00.02*).

#### **Information according to the reviewers of the dissertation Zhussipbekova Sh.E.:**

*Nurkasymova Saule Nurkasymovna* - Doctor of Pedagogical Sciences, Professor, L.N.Gumilyov Eurasian National University (*specialty code -*



13.00.02)7

*Ualikhanova Bayan Saparbekovna* - PhD, South Kazakhstan State Pedagogical University (specialty code - 6D011000 - Physics).

**Information according to the reviewers of the dissertation Abdraimov R.T.:**

*Nurumzhanova Kulyash Aldongarovna* - Doctor of Pedagogical Sciences, Professor, "Toraigyrov University" (specialty code 13.00.02, 13.00.01).

*Yerzhenbek Bulbul* – PhD, Kazakh National Pedagogical University Abai (specialty code: 6D011000 - Physics).

**Information according to the reviewers of the dissertation Ardabayeva A.K.:**

*Kagazbayeva Aspet Kenesbekovna* - Doctor of Pedagogical Sciences, Professor, Aktobe Regional University named after K. Zhubanov (specialty code - 13.00.02).

*Tukanaev Turar* - Candidate of Physical and Mathematical Sciences, Associate Professor, L.N.Gumilyov Eurasian National University (specialty code: 01.01.04).

**6. Proposals for further improvement of the system of training scientific personnel.**

At the meetings of the dissertation council, issues of further improvement of the work of dissertation councils were raised, namely:

- heads of universities sending dissertations for defense need to strengthen the responsibility of graduating departments and scientific consultants for the quality and level of preparation of dissertations recommended for defense;

- if doctoral students have scientific articles written by a team of authors, it is necessary to provide a certificate of consent of the co-authors for their use by the doctoral student;

- in order to identify the quality level of the dissertation and subsequently make recommendations for each of them, it is necessary to organize a scientific and methodological seminar at the relevant department for a preliminary discussion of the dissertation.

**7. The number of dissertations for the degree of Doctor of Philosophy (PhD), Doctor by profile in the context of specialties (directions of training):**

	6D010900 / 8D01501 – Mathematics	6D011000 / 8D01504 – Physics
Dissertations accepted for defense (including doctoral students from other universities)	2	2
Dissertations withdrawn from consideration (including doctoral students from other universities)	-	-

Dissertations for which negative reviews have been received from reviewers (including doctoral students from other universities)	-	-
Dissertations with a negative decision based on the results of defense (including doctoral students from other universities)	-	-
Dissertations aimed at revision (including doctoral students from other universities)	-	-
Dissertations aimed at re-defense (including doctoral students from other universities)	-	-

**Chairman  
dissertation council**

**Scientific Secretary  
Dissertation Council**

**December 30, 2023.**



**Abylkassymova A.Y.**

**Tuyakov Y.A.**