

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN

KARAGANDA UNIVERSITY NAME OF ACADEMICIAN E.A. BUKETOV

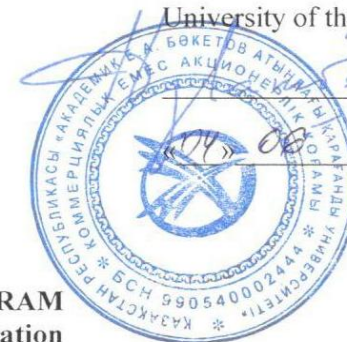
«AGREED»

Director of the branch of SC NCPD «Open»
TPDI in Karaganda region



«CLAIM»

To Charman of the Board-Rector of Karaganda
University of the name of academician E.A.Buketov



professor N.O. Dulatbekov

2021 г.

**EDUCATIONAL PROGRAM
in the direction of preparation**

«8D011 – Pedagogy and psychology»

Level: Doctoral studies

«8D01100103 - Digital pedagogy»

Level: Doctoral studies

Degree: doctor of Philosophy PhD in the educational program «8D01100103 – Digital Pedagogy»

The educational program in the direction of training "8D011 – Pedagogy and psychology" is developed on the basis of:

- Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III "on education" (as amended as of 11.07.2017),
- Law of the Republic of Kazakhstan dated 11 July 1997 No. 151-I. " on languages in the Republic of Kazakhstan "(as amended as of 24.05.2018),
- State compulsory standard of postgraduate education dated August 31, 2018 No. 604 (as amended on 05.05.2020 No. 182)
- National qualifications framework of March 16, 2016 by the Republican tripartite Commission on social partnership and regulation of social and labor relations.
- Order of MES RK" on approval of the Rules of the educational process on credit technology " dated October 2, 2018 No. 152 (as amended from 12.10.2018 No. 563)
- Classifier of areas of training with higher and postgraduate education from October 13, 2018. No. 569.
- Professional standard "Teacher "(Annex to the order of the Chairman of the Board of the National chamber of entrepreneurs of the Republic of Kazakhstan" Atameken " dated June 8, 2017 No. 133)

Recommended University Academic Council's from _____.

Educational program "8D01103 - Digital Pedagogy"

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1. Passport of the educational program "8D01103 - Digital Pedagogy"

1.1 General information about the educational program

1. Field of education: 8D01- Pedagogical Sciences
2. Direction of training: 8D011 – Pedagogy and psychology
3. Training period: 3 years
4. Language of instruction: Kazakh and Russian
5. Appendix to the state license to engage in educational activities: series AB № 0137349 date of issue 03.02.2010 year, order KKSON MES RK №168 from 03.02.2010 year, license №12015198 date of issue 15.10.2012 year, order KKSON MES RK №802 from 02.06.2012 year; Number of the application to the license for the direction of training: №036 from 02.04.2019.
6. Accreditation of educational program: -
7. Admission requirements: doctor of Philosophy PhD in the educational program "8D01103 - Digital Pedagogy"
8. Type of educational program: innovative
9. Established prerequisites for the development of the program:
 - if the profile of the doctoral study program coincides with the master's program - not required
 - if the profile of the doctoral study program does not coincide with the master's program:
 - Pedagogy (5 ESTC);
 - Computer technologies in science and education (4 ESTC).
10. Information about foreign partners in the implementation of the program:
 - Agreement on international cooperation between the Chuvash state pedagogical University. I.Y. Yakovlev, the Russian Federation and Karaganda Buketov University, Kazakhstan, 07.02.2012-07.02.2022
 - Cooperation agreement between Novosibirsk state pedagogical University, Russian Federation and Karaganda Buketov University, 24.09.2012 – 24.09.2022
 - Cooperation agreement between the peoples ' friendship University of Russia, Russian Federation and Karaganda Buketov University, Kazakhstan, 18.10.2012-18.10.2022
 - Cooperation agreement between Moscow state linguistic University, Russian Federation and Karaganda Buketov University, 11.06.2013 – 11.06.2018
 - Memorandum of cooperation between the national research Tomsk Polytechnic University, the Russian Federation and Karaganda Buketov University, Kazakhstan, 04.04.2008-indefinite
11. The main bases of practices in the educational program:
 - Pedagogical practice:
 - Department of "Applied mathematics and Informatics" Karaganda Buketov University
 - KSU "Specialized boarding school № 7 named after Zhambyl for gifted children" Karaganda
 - KSU "school-Lyceum №. 66" Karaganda
 - KSU "school-Lyceum № 101" Karaganda
 - Branch "Nazarbayev Intellectual school of chemical and biological direction "Karaganda AEO" Nazarbayev Intellectual schools"
 - Karaganda regional specialized boarding school for gifted children "Daryn"
 - Research practice:
 - the Department "Applied mathematics and Informatics" of the Karaganda Buketov University.
 - State enterprise "Institute of applied mathematics" MCREP RK, Kazakhstan (cooperation Agreement, 01.10.2018 - 01.10.2023)
 - IQ-SOLUTION LLP, Astana, Kazakhstan (cooperation agreement, 29.05.2018 - 29.05.2023)

- Eram Kazakhstan LLP, Astana, Karaganda branch, Kazakhstan (cooperation agreement, 31.05.2018 - 31.05.2023)
- "Center of information systems WTO" LLP, Karaganda, Kazakhstan (cooperation agreement, 20.11.2018-20.11.2023,)
- Immanuel Kant Baltic Federal University, Kaliningrad, Russia (cooperation agreement, 25.01.2018-25.01.2023)

12. Main scientific organizations, organizations of relevant industries or fields of activity, including foreign ones, for conducting scientific training

- Czech University of technology, Prague
- National research Tomsk Polytechnic University, Russian Federation
- State enterprise "Institute of applied mathematics" MCREP RK
- IQ-SOLUTION LLP, Astana, Kazakhstan
- "Eram Kazakhstan" LLP, Astana, branch of Karaganda, Kazakhstan

13. The main scientific organizations, research institutes, centers for research work

- Omsk state pedagogical University, Russian Federation (cooperation Agreement 29.04.2016 – 29.04.2026)
- National research Tomsk Polytechnic University, Russian Federation
- Branch "Nazarbayev Intellectual school of chemical and biological direction "Karaganda AEO" Nazarbayev Intellectual schools"
- State enterprise "Institute of applied mathematics" MCREP RK
- IQ-SOLUTION LLP, Astana, Kazakhstan
- "Eram Kazakhstan" LLP, Astana, branch of Karaganda, Kazakhstan

14. List of employers

№	Название компаний, предприятий, организаций	Контакты, телефон, e-mail
1.	Karaganda Buketov University	office@ksu.kz 8(7212) 77-03-95
2.	Karaganda Technical University	kargtu@kstu.kz 8(7212) 56-03-28
3.	Karaganda Medical Academy	info@kgmu.kz 8(7212) 51-34-79, 50-39-30
4.	Karaganda economic University	mail.@keu.kz 8(7212) 44-16-32
5.	Karaganda Industrial University RSE Temirtau	www.kgiu.kz 8(7213) 91-42-34

2. Qualification characteristics of graduates of magistracy

2.1 List of qualifications and positions

The graduate of a doctoral program is awarded the degree "PhD in Philosophy in the educational program 8D01103 - Digital Pedagogy"

Positions: university teacher, associate professor, professor, researcher, project manager, leading specialist, deputy head of the university, chief specialist, expert, researcher, head of the university.

2.2 Sphere of professional activity

The sphere of professional activity of graduates in the educational program "8D01103 - Digital Pedagogy":

- system of higher and postgraduate education;
- educational institutions;

- research organizations.

2.3 Objects of professional activity

The objects of professional activity of masters in the educational program "8D01103- Digital Pedagogy":

- higher education institutions;
- teacher training colleges;
- departments of the department of education;
- Institutes of advanced training and retraining of personnel of the educational system;
- research institutes and laboratories.

2.4 Subject of professional activity

The subject of professional activity of graduates in the educational program "8D01103 - Digital Pedagogy" implementation of educational, managerial and research activities.

2.5 Types of professional activity:

- pedagogical (teaching in magistracy, doctoral studies);
- research;
- administrative and managerial (analyst, strategist in the field of science, education and high technology);
- expert advisory (examination of scientific articles and projects, scientific management of master's theses, the use of innovation in the scientific and technical field).

2.5 Functions of professional activity:

- **teaching** - broadcasts educational information, teaches you to independently acquire knowledge, designs training sessions taking into account the linguistic needs and requirements of students, uses new teaching technologies for digital pedagogy, including digital technologies and ICT, etc.;
- **educational** - introduces students to the system of social values, observing pedagogical tact, the rules of pedagogical ethics, shows respect for the personality of students, builds the educational process taking into account the national priorities of Kazakhstan, etc.;
- **methodical** - provides methodological support for the information and educational environment, determines the content of the course (module); methods for the development and implementation of educational programs of higher education specialties, including taking into account the training of multilingual staff; Designs educational programs for university specialties; manages the scientific and methodological support of educational programs of the university specialties; introduces copyright programs; develops educational materials, digital educational resources, etc.;
- **research** - identifies problems, conducts psychological and pedagogical research in the field of digital pedagogy, implements research results in professional activities; supervises the research of students, undergraduates, doctoral students;
- **socio-communicative** - interacts with the professional community and with all interested parties, initiates innovative ideas that unite educational stakeholders, etc.;
- **management** - manages processes in the context of general trends in the development of education and science, the general strategic direction of the development of educational organization.

2.6 Typical tasks of professional activity

- determine the strategy of scientific and pedagogical activity;
- predict the results of innovations in scientific and pedagogical activity;
- implement changes in the field of education and science;
- implement scientific and educational projects in professional activities;
- manage educational and research processes in pedagogical activity;

- plan and independently conduct experimental research work, as well as evaluate its results;
- to formulate and practically solve modern scientific and practical problems in the field of digital pedagogy;
- to carry out the development of new knowledge in the field of computer science and methods of digital education;
- independently obtain new knowledge necessary for professional activities;
- show leadership qualities, observe the culture of relationships in the team and the ethics of the scientist..

2.7 Content of professional activity

- teaches disciplines of the information-pedagogical cycle;
- forms universal values and the desire for professional and scientific growth among participants in the educational process;
- develops and implements methodological support in the educational process, taking into account the achievements of digital pedagogy, psychology, ICT and computer science;
- organizes and conducts research on topical issues of ICT and psychological and pedagogical science;
- interacts with all interested professional communities in order to promote and introduce innovations in professional activities;
- carries out management activities taking into account the development of education and science.

3. The purpose of the educational program

Training of competitive specialists in digital technologies and modern methods of scientific research in the field of digital pedagogy.

3.1 General purpose of the educational program:

Training of qualified specialists for the development of education and science of the Republic of Kazakhstan, providing professional training for PhD students for independent research in the field of ICT and digital pedagogy.

3.2 The purpose of the cycle of basic disciplines

The formation of fundamental knowledge in pedagogy, computer science, research methodology and their transformation in future professional activities.

3.3 purpose of the cycle of core disciplines

Formation of professional pedagogical and IT competencies taking into account innovative achievements in digital pedagogy.

3.4 The Purpose of scientific research/ experimental research work

The formation of skills in the organization and conduct of research using domestic and foreign experience, the implementation of scientific developments in the field of digital pedagogy in professional activities.

3.5 Purpose of final certification

Establishing the conformity of graduate training to the basic requirements of the qualification “Doctor PhD in the educational program“ 8D01103 - Digital Pedagogy ”, assessing the quality of mastering EP and the level of formation among graduates of EP of professional and pedagogical competence.

4. Key competencies of the graduate

Code of competencies	The description of the competences
Personal competencies	
LC1	Improves and develops its intellectual and cultural level, strives for the development and growth of personal qualities, creative abilities to achieve selected goals, reassessment of experience
LC2	The ability, on the basis of deep knowledge of the methodology of pedagogy, scientific research and digital pedagogy, the relevant areas of pedagogical science to demonstrate a scientific worldview in their professional activities.
Core competencies	
PC1	The ability to apply the skills of written scientific communication in professional activities
PC2	Owens fundamental knowledge of pedagogy and research methodology.
PC3	Integrates modern methods and technologies into the educational process of the continuous education system
PC4	Uses innovative tools of digital pedagogy for the formation of information and educational environment
PC5	Applies scientific approaches to the design, development and quality assessment of digital educational resources, taking into account the requirements of pedagogical design in the information and educational environment
PC6	Designs, develops and uses digital educational products and services for solving interdisciplinary and research problems of digital pedagogy

5. Key learning outcomes

Code learning outcome	Result
LO1	He is fluent in the compilation and execution of scientific documentation (scientific reports, articles in refereed journals, reports, reviews, abstracts, annotations), bibliography and references, uses the skills of business communication, working with electronic databases in the field of professional and corporate ethics
LO2	Demonstrates relevant knowledge of the methodology of scientific and pedagogical research, contributing to the implementation of the main directions of educational policy
LO3	He has the skills to analyze methodological problems that arise when solving research and practical problems, including in the interdisciplinary fields of digital pedagogy
LO4	It puts into practice modern technologies and methods of professionally oriented training for developing innovative solutions to applied and scientific tasks of digital pedagogy
LO5	Reasonably uses online services and Web technologies to implement the tasks of the digital educational environment
LO6	Determines the degree of compliance of current educational formats, methods and practices with the demands of digital pedagogy in the context of an information and educational environment.
LO7	Uses information and communication technologies based on a scientific approach to design and develop digital educational services and resources
LO8	Selects optimal and effective technologies for interactive data visualization for solving interdisciplinary and research problems of digital pedagogy

6. Matrix of correlation of learning outcomes according to the educational program

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8
LC1	+	+	+	+	+	+	+	+
LC2	+	+	+	+	+	+	+	+
PC1	+							
PC2		+	+					
PC3				+				
PC4					+			
PC5						+		
PC6							+	+

7. The map of competences

Module code	Module name	Codes of discipline module	Name of discipline	Learning result code	Competence code
1	2	3	4	5	6
BD/UC	The methodology of scientific research	AW1201	Academic writing	LO1	LC1, LC2, PC1
BD/UC		MSR1202	Methods of scientific research	LO2, LO3	LC1, LC2, PC2
BD/UC	Methodology and digital pedagogy	TPOTDP1203	Technologies of professionally oriented training in digital pedagogy	LO4	LC2, PC3
		DTE1203	Digital tools in education	LO5, LO6	LC2, PC4
AM/PR	Methodology and digital pedagogy (continued)	IEEDP1304	Information and educational environment and digital pedagogy	LO6	LC2, PC4
AM/PR	Digital Resource Development	PDDER1305	Pedagogical design of digital educational resources	LO7	LC2, PC5
AM/PR	Technologies	TIDVE1305	Interactive data visualization technologies in education	LO8	LC2, PC6

8. Content of the educational program

8.1 Map of the educational program

Module code	Cycle and component	Code disciplines	Form of control	Semester	ESTC	Learning outcome
1 course						
МБД/МБК The methodology of scientific research	BD/UC	AW1201 Academic writing	Exam	1	5	<p><i>Knowledge:</i> Structures and concepts of academic writing, basic concepts and types of academic writing, basic techniques of paraphrasing and citing in academic writing. Plagiarism.</p> <p><i>Skills:</i> to create a written academic text in English on scientific problems in the field of pedagogy using lexical, grammatical, stylistic and compositional-structural means appropriate to the academic situation, as well as edit academic texts in English and evaluate their quality.</p> <p><i>Skills:</i> skills to build a written academic text of various genres (scientific article, abstract of a scientific article, a summary of the contents of a scientific article, essay).</p> <p><i>Competencies:</i> LK1, LK2, PK1</p> <p><i>Evaluation Criteria:</i> applies the skills of business communication, writing scientific articles in refereed journals and scientific collections, reports in the English language, letters and electronic messages, essays.</p>
	BD/UC	MMNPI 8102 Methodology and methods of scientific and pedagogical research	Exam	1	5	<p><i>Knowledge:</i> methodology of scientific and pedagogical research; logic of scientific and pedagogical research; basic terms and methods of scientific and pedagogical research.</p> <p><i>Skills:</i> to work with scientific, methodological and special literature; to diagnose the state of the educational process according to the main characteristics and to predict its further development; formulate the scientific basis of pedagogical research, determine the stages of its implementation; to develop their own approaches to the educational process.</p> <p><i>Skills:</i> formulate goals, choose appropriate types of activity, forms and methods of research; carry out scientific research in accordance with methodological approaches and principles; work independently with scientific and pedagogical sources.</p> <p><i>Competencies:</i> LK1, LK2, PK2</p> <p><i>Evaluation Criteria:</i> determines the logic and structure of scientific research; effectively selects methods of scientific and pedagogical research; owns methodological approaches and principles of scientific and pedagogical research.</p>
МБД/МКВ Methodology and digital pedagogy	BD/EC	TPOTDP1203 Technologies of professionally oriented training in digital	Exam	1	5	<p><i>Knowledge:</i> basic concepts and characteristics of learning technology: individualization and differentiation of learning, student-centered learning, learning collaboration, developing learning, modular learning, digital learning</p> <p><i>Skills:</i> to own types of teaching technologies using ICT, to carry out problem-based learning, to organize distance learning, to implement types of project-based learning.</p> <p><i>Skills:</i> use learning technologies in digital pedagogy</p> <p><i>Competencies:</i> LK1, LK2, PK3</p>

		pedagogy				<i>Evaluation Criteria:</i> Effectively applies training tools and technologies when planning the educational process; uses innovative approaches in teaching and learning; has the skills to use a variety of learning technologies.
	BD/EC	DTE1203 Digital tools in education	Exam	1	5	<i>Knowledge:</i> pedagogical capabilities of Web 2.0 services, cloud technologies, geoinformation services, creation services for creating and publishing tests, surveys, developing presentation materials, mind maps, timelines, tag clouds, infographics. <i>Skills:</i> own Web 2.0 services for the development of educational resources and their use in the educational process. <i>Skills:</i> Design and use digital tools in an educational environment <i>Competencies:</i> LC2, PC4 <i>Evaluation criteria:</i> Applies tools and services for the development of digital educational resources; owns Web 2.0 services, cloud technologies, geographic information services; has skills in co-building and publishing tests, surveys, developing presentation materials, mind maps, timelines, tag clouds, infographics.
	AM/PR	PP12PP Pedagogical practice	Differential offset	2	10	<i>Knowledge:</i> structure, functions of pedagogical activity and the main directions of its development in the conditions of transformation of modern society; features of pedagogical communication and interaction between teacher and students; requirements for the teaching profession. <i>Skills:</i> to design and organize the pedagogical process at school / university, apply modern information technologies in teaching information disciplines, take into account age and individual characteristics of students; own methods, techniques and means of conducting lessons and extracurricular activities. <i>Skills:</i> definition and formulation of educational and educational goals and objectives of training; selection of appropriate types, forms and methods of activity in the pedagogical process in accordance with the requirements of the state education system. <i>Competencies:</i> LK1, LK2, PK1, PK2 <i>Evaluation Criteria:</i> Demonstrates the level of training for solving psychological and pedagogical problems in the educational process of higher education, analyzes the psychological conditions and characteristics of educational activities in order to increase the efficiency and quality of work in the education management system. Professionally owns leadership skills, the main provisions of normative documents in planning, forecasting, analysis of the main components of the process of training and education in higher education.
МПД/МВК Methodology and digital pedagogy (continued)	CD/UC	IEEDP1304 Information and educational environment and digital pedagogy	Exam	1	5	<i>Knowledge:</i> features of pedagogical technologies in the system of information and educational environment, innovative tools in the context of the implementation of digital pedagogy methods. <i>Skills:</i> designing an educational information environment, using virtual and augmented reality technologies, cloud and Internet technologies. <i>Skills:</i> the use of digital pedagogy tools for the formation of the educational information environment from the point of view of critical pedagogy. <i>Competencies:</i> LK1, LK2, PK4 <i>Evaluation Criteria:</i> Applies digital technology to ensure educational results. Fluent in innovative tools in the context of the implementation of digital pedagogy
МПД/МВК Digital resource development technologies	CD/EC	PDDER1305 Pedagogical design of	Exam	1	5	<i>Knowledge:</i> functional features, tasks and stages of the pedagogical design of the Center for Digital Studies in the digital educational environment, modern technologies for the design of digital objects, the basics of the pedagogical design of educa-

		digital educational resources				<p>tional resources.</p> <p><i>Skills:</i> to take into account the levels of pedagogical design in the process of designing the educational process in the learning environment, to own methods for assessing the didactic quality of the TSOR. Apply the rules of UX design when creating a digital educational product.</p> <p><i>Skills:</i> the implementation of the stages of analysis, design, development, application and evaluation of the pedagogical design of the Center.</p> <p><i>Competencies:</i> LK1, LK2, PK5</p> <p><i>Evaluation Criteria:</i> Understands the concepts and objectives of designing a digital learning center, implements the stages of pedagogical design. He owns the requirements for the center, applies the criteria for assessing the didactic quality of the center.</p>
Digital resource development technologies		TIDVE1305 Interactive data visualization technologies in education	Exam	1	5	<p><i>Knowledge:</i> principles of data visualization, basics and classification of infographics. Typology of data visualization methods. Interactive info graphics. Interactive learning tools: mind maps, interactive exercises, word cloud. Ways to improve the efficiency of visualization.</p> <p><i>Skills:</i> apply data visualization tools, online tools for creating infographics, ways to improve the efficiency of visualization in the educational process</p> <p><i>Skills:</i> Design, develop, and use interactive learning tools.</p> <p><i>Competences:</i> LC2, PC6</p> <p><i>Evaluation Criteria:</i> Understands the principles of data visualization. Uses interactive tools to improve the efficiency of data visualization.</p>
Digital resource development technologies (continuation)	AM/PR	RP2300 Research practice	Differential 1 offset	3	10	<p><i>Knowledge:</i> the theoretical foundations of subjects studied in the process of training in a given specialty and their application in educational research activities, solutions to the problem posed in doctoral dissertation, tasks.</p> <p><i>Skills:</i> to develop models, algorithms for solving a specific problem, task; find a solution, get results and interpret them; to systematize the necessary materials for a doctoral dissertation.</p> <p><i>Skills:</i> search and selection of relevant literary sources; the use of the basic techniques of research activities, the conduct of a pedagogical experiment.</p> <p><i>Competencies:</i> LK1, LK2, PK1, PK2, PK3, PK4</p> <p><i>Evaluation Criteria:</i> Able to analyze options for solving research and practical problems and use the experience of conducting scientific research. Applies skills to analyze methodological problems arising in solving research and practical problems, including in interdisciplinary fields.</p>
Doctoral student research work, including internship and doctoral dissertation	AM/PR	DSRWIIDD3300 Doctoral student research work, including internship and doctoral dissertation	Differential 1 offset	1,2,3,4,5,6	123	<p><i>Knowledge:</i> general scientific methodology, logic and technology for conducting research work.</p> <p><i>Skills:</i> to operate with large amounts of scientific information, to work independently with its various sources, to freely navigate in fundamental science; use digital technologies and software products to solve professional problems.</p> <p><i>Skills:</i> creative solutions to complex professional tasks, designing research results in various forms of scientific production</p> <p><i>Competencies:</i> LK1, LK2, PK1, PK2, PK3, PK4, PK5, PK6</p> <p><i>Evaluation Criteria:</i> Able to conduct scientific discussion, reasonably demonstrate the results of their own research. Freely use digital technology for research. He owns the methods of conducting a pedagogical experiment and analyzing the results of scientific research.</p>

FST-8		Writing and defending a doctoral dissertation		6	12	<p><i>Knowledge:</i> types of pedagogical teaching technologies, methodology and methods of scientific and pedagogical research, methods and tools of digital pedagogy, modern teaching technologies, methods of processing scientific information; design and development technologies for digital educational resources, organization of project activities.</p> <p><i>Skills:</i> to use the acquired knowledge of modern areas of digital pedagogy in solving professional problems.</p> <p><i>Skills:</i> using the methods of pedagogy, scientific and pedagogical research, ICT in educational activities; organization and planning of scientific, pedagogical research.</p> <p><i>Competencies:</i> LK1, LK2, PK1, PK2, PK3, PK4, PK5, PK6</p> <p><i>Evaluation Criteria:</i> Applies the skills of analysis of methodological problems that arise when solving research and practical problems, designing and developing digital educational resources. Able to present a scientific and qualification work (dissertation) using modern means, clear analytical conclusions, supported by the theory and practice of digital pedagogy.</p>
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8.2. A summary table of the scope of the educational program:

Training course	Semester	Number of disciplines studied		Number of credits						Only in hours	ECTS	Number	
		BK	KB	Theoretical training	The supervised practice	Research practice	DSR	Final certification	Just			Exam	Differential offset
1	1	3	2	25	-	-	5		30	900	30	5	1
	2	-	-		10	-	20		30	900	30		2
2	3	-	-	-		10	20		30	900	30	-	2
	4	-	-	-		-	30		30	900	30	-	1
3	5	-	-	-			30		30	900	30	-	1
	6	-	-	-			18	12	30	900	30		1
Subtotal		3	5	25	10	10	123	12	180	5400	180	5	8

Compilers:

Head of department AMaI
Professor of the Department AMaI

CEL
Heep

E.A. Spirina
D.A. Kazimova

Notes.

The educational program is considered and recommended by the faculty Council 14.04.2021 Protocol No 7.
The educational program was considered at a meeting of the Academic Council of the University and recommended for approval from 24.06.2021 Protocol No 5.1
The educational program was considered and approved at the meeting of the Academic Council of 04.06.2021 Protocol No 18

Member of the Management Board, Vice-Rector for Research
Member of the Management Board, Acting Vice-Rector for Academic Affairs
Head of Educational Methodical Department
Dean of the Faculty of Mathematics and Information technology

Praced
Heep

E.M. Tazhbaev
B.R. Nussupbekov
S.G. Karstina
D.A. Kazimova