MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF KAZAKHSTAN
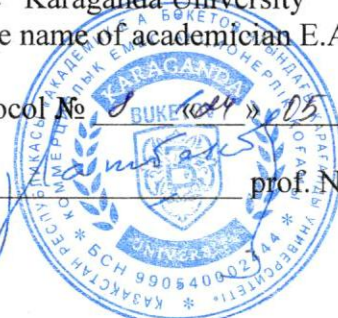
KARAGANDY UNIVERSITY OF THE NAME OF ACADEMICIAN E.A. BUKETOV

«APPROVED BY»

The decision of the Administration of
NLC "Karaganda University
of the name of academician E.A. Buketov"

Protocol № _____ «___» _____ 20__ y.

_____ prof. N.O. Dulatbekov

«APPROVED BY»

The decision of the Directory Board of
NLC "Karaganda University
of the name of academician E.A. Buketov"

Protocol № ___ «21» 06 20__ y.

EDUCATIONAL PROGRAM

8D01103 - Digital pedagogy

Level: Doctoral studies

Karaganda,
2024

APPROVAL SHEET

EDUCATIONAL PROGRAM 8D01103 - DIGITAL PEDAGOGY

"AGREED"

Head of the Department of Education of the Karaganda region

_____ G.S.Zhunusova

" 15 " 04 _____ 2024y.

"AGREED"

Director of the branch "Nazarbayev Intellectual School of chemical and Biological direction of Karaganda"

_____ R. Yakupov

" 15 " _____ 2024y.

"AGREED"

Director of KSU Specialized Boarding School "Daryn" of the Department of Education of the Karaganda region

_____ L.A.Temerkhanova

" 15 " 04 _____ 2024y.

The educational program ''8D01103 - Digital Pedagogy'' was developed on the basis of:

– – The Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III (with amendments and additions dated 04/15/2024 No. 72-VIII);

– Order of the Ministry of Education and Science of the Republic of Kazakhstan No. 152 dated 04/20/2011 "On approval of the Rules for the organization of the educational process in credit technology" (with amendments and additions dated 04/29/2024 No. 203)

- The National Qualifications Framework dated 03/16/2016. The Republican Trilateral Commission on Social Partnership and Regulation of Social and Labor Relations;

– Order of the Ministry of Education and Science of the Republic of Kazakhstan No. 569 dated 10/13/2018 "On approval of the Classifier of areas of training with higher and postgraduate education" " (with amendments and additions dated 07/21/2023 No. 327);

– State mandatory standards of higher and postgraduate education (Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2) (with amendments and additions dated 02/20/2023);

– Professional standard "Teacher" (Order of the Minister of Education of the Republic of Kazakhstan dated December 15, 2022 No. 500) (with amendments and additions from 02/23/2024 No. 64-VIII);

– Professional standard for teachers (teaching staff) of organizations of higher and (or) postgraduate education, approved by Order of the Minister of Science and Higher Education of the Republic of Kazakhstan No. 591 dated November 20, 2023. (as amended on 06.12.2023 No. 616);

– The Law of the Republic of Kazakhstan "On the status of a teacher" dated December 27, 2019 No. 293-VI ZRK (with amendments and additions dated 04/27/2024);

– Professional standard of the Information and Communication Technologies direction No. 171 dated July 17, 2017, as amended on December 05, 2022. Order No. 222 of the Acting Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken".

Content

Passport of the educational program

1. Code and name of the educational program: «8D01103 - Digital pedagogy»

2. Code and classification of the field of education, areas of training: 8D011 – Pedagogy and psychology

3 Group of educational programs: D001 – Pedagogy and psychology

4. Volume of credits: 180 ECTS

5. Form of training: full - time

6 Language of study – Russian, kazah

7. Degree granted: Doctor of Philosophy PhD in the educational program "8D01103 - Digital pedagogy"

8. Type of EP (current, new, innovative) – innovative

9. ISCED level - 8

10. The level of the NRK – 8

11. ORC Level - 8

12. Distinctive features of the EP: no

13. The number of the appendix to the license for the direction of training: Appendix No. 14 to the state license No. KZ83LAA00018495 dated 07/28/2020

14. The name of the accreditation body and the validity period of the accreditation EP: no

15. The goal EP:

Training of competitive specialists who own digital technologies and methods of scientific and pedagogical research in the field of digital pedagogy, for the implementation of modern directions of educational policy.

16. Qualification characteristics of the graduate

a) List of graduate positions:

- university teacher,

- associate professor,

- professor,

- research associate,

- project manager,

- leading specialist,

- chief specialist,

- expert,

- researcher,

- deputy head of the educational organization

- head of the educational organization.

b) The sphere and objects of professional activity of the graduate:

The sphere of professional activity of graduates of the educational program "8D01103 - Digital pedagogy" is the system of higher and postgraduate education, educational institutions, research organizations.

The objects of professional activity of masters under the educational program "8D01103 - Digital Pedagogy" are higher educational institutions, pedagogical colleges, departments of the Department of Education, institutes of advanced training and retraining of personnel of the education system, research institutes and laboratories.

c) Types of professional activity

The types of professional activity of graduates are:

- pedagogical (teaching in master's degree, doctoral studies);

- scientific research;

- administrative and managerial (analyst, strategist in the field of science, education and high technologies);

- expert advisory (examination of scientific articles and projects, scientific management of master's theses, application of elements of innovation in the scientific and technical field).

d) Functions of the graduate's professional activity

The main functions of the activity are:

- educational - broadcasts educational information, teaches to independently acquire knowledge, designs training sessions taking into account the linguistic needs and requests of students, teachers and uses new technologies for teaching digital pedagogy, including digital technologies and ICT, etc.;

- educating - introduces students to the system of social values, compliance with pedagogical tact, 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 of developing and implementing educational programs of higher education specialties, including taking into account the training of multilingual personnel; designs educational programs of university specialties; manages scientific and methodological support of educational programs of university specialties; implements author's programs; develops educational materials, digital educational resources, etc.;

- research - identifies problems, conducts psychological and pedagogical research in the field of digital pedagogy, implements the results of research in professional activities; directs scientific research of students, undergraduates, doctoral students;

- social and communicative - interacts with the professional community and with all interested parties, initiates innovative ideas that unite education stakeholders, etc.;

- managerial - manages processes in the context of general trends in the development of education and science, the general strategic direction of the development of the organization of education.

17. Formulation of learning outcomes based on competencies

Type of competencies	Codes	Learning outcomes
Behavioural skills and personal competencies (Soft skills)	LO1	Reasonably applies digital tools, online services and Web technologies, selects effective interactive data visualization technologies to solve interdisciplinary and research tasks of digital pedagogy.
	LO2	Applies modern technologies and methods of professionally-oriented training in pedagogical activity for innovative solutions to applied and scientific problems of digital pedagogy.
	LO3	Uses information and communication technologies based on a scientific and pedagogical approach to design and develop digital educational services and resources.
Professional competencies (Hard skills, Digital skills)	LO4	Demonstrates current knowledge of the methodology of scientific and pedagogical research, justifies the choice of methods of analysis and solving professional pedagogical tasks
	LO5	Possesses the skills of designing the information and educational environment, interaction of participants in the educational process, uses digital technologies to implement professional tasks.
	LO6	He has the skills to analyze methodological problems that arise when solving research and practical problems, including in the interdisciplinary fields of digital pedagogy
	LO7	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

18. Determination of modules of disciplines in accordance with the results of training

Learning outcomes code	Name of the module	Name of disciplines	Volume (ECTS)
LO1, LO2	Methodological basics of research	Academic writing (in English)	5
LO2, LO3		Methods of scientific research	5
LO3, LO5	Methodology and digital pedagogy	Information and educational environment and digital pedagogy	5
LO3, LO4		Teaching practice	10
LO2, LO3		Research practice	10
LO3, LO4	Digital resource development technologies	Technologies of professionally-oriented learning in digital pedagogy	
LO5, LO6		Digital tools in education	5
LO5, LO6		Organization of digital learning	
LO6, LO7		Pedagogical design of digital educational resources	
LO6, LO7		Interactive data visualization technologies in education	5
LO1, LO2, LO3	Research work by a doctoral candidate	Research work of the doctoral candidate, including internships and doctoral thesis	123
LO1, LO2, LO3, LO4, LO5, LO6, LO7	Final assessment	Writing and defending doctoral thesis	12

19. Matrix of achievability of learning outcomes

NN	Name of disciplines	Brief description of the discipline (30-50 words)	Number of credits	Generated learning outcomes (codes)						
				LO1	LO2	LO3	LO4	LO5	LO6	LO7
Cycle of basic disciplines **University component**										
D1	Academic writing (in English)	The discipline is studied in order to form competencies related to analytical research and textual activities; skills of analytical-synthetic, critical and pragmatic thinking. In the process of studying the discipline, the types, methods and ethical principles of writing scientific texts, the principles of constructing a scientific text and preparing it for publication, the design of a bibliographic list, the basic rules for quoting scientific literature, the types of annotations and the features of their compilation, reviewing a scientific text are considered.	5	+	+					
D2	Methods of scientific research	The discipline is studied in order to form the skills of doctoral students to carry out independent research activities; the use of scientific research methods to achieve the objectives set in the dissertation research; the use of methods of processing empirical data on the topic of their dissertation research.	5		+	+				
D3	Teaching practice	The purpose of pedagogical practice is the formation of doctoral students professional competencies that ensure readiness for pedagogical activity in universities, designing the educational process in accordance with the profile of training and conducting certain types of training sessions using innovative educational technologies.	10			+	+			
Cycle of basic disciplines **Component of choice**										

D4	Technologies of professionally-oriented learning in digital pedagogy	The essence and characteristics of learning technologies. Technology of individualization and differentiation of training. Technology of personal-oriented training. Technology of educational cooperation. Technology of developing learning. Modular learning technology. Digital learning technologies Information technology training. Distance learning. Problem-based learning. The ethno-pedagogical technologies of training. The project method of teaching.	5			+	+				
D5	Digital tools in education	Information educational environment and network technologies. Pedagogical capabilities of Web 2.0 services. Cloud technologies in education: data storage services, Google services. The use of photo, audio and video hosting. Geoinformation services. Services for creating and publishing tests, surveys. Online services for the development of presentation materials, intelligence maps, timelines, tag clouds, infographics. Services for creating and publishing bookmarks, short URLs, QR codes.							+	+	
D6	Organization of digital learning	Educational information and educational environment. Organizational and activity aspects of the interaction of subjects of the educational digital environment. Digital learning strategies. Didactic principles, technologies and methods of digital education: adaptive learning and adaptive testing, virtual reality and virtual classroom, gamification, business simulations and games, augmented reality, artificial intelligence in learning, microlearning, mobile learning, flipped learning and flipped classroom, personalization of learning, blended learning.							+	+	
Cycle of profile disciplines **University component**											
D7	Information and educational environment and digital	The concept of information and educational environment. Requirements for modern information and educational environment (IEE). The structure of the IEE. Professional activity of a teacher in the IEE. Digitalization and	5			+		+			

	pedagogy	modernization of educational institutions. Methods and techniques of organizing the educational process with elements of digital learning. Using digital educational resources in the IEE.								
D8	Research practice	The purpose of the research practice is the study by doctoral students of the latest theoretical, methodological and technological achievements of national and international science, as well as the consolidation of practical skills in applying modern methods of scientific research, processing and interpretation of experimental data in a dissertation research.	10		+	+				
Cycle of profile disciplines **Component of choice**										
D9	Pedagogical design of digital educational resources	Pedagogical design of digital educational resources: concept, tasks, stages. Tasks of pedagogical design of the Central Educational Institution. The connection of pedagogical design with educational technologies. Pedagogical design (design) as a learning environment design process. Stages of pedagogical design of the Central Educational Institution: analysis, design, development, application, evaluation. Requirements and criteria for the evaluation of the didactic quality of the COR. Modern technologies for designing digital resources.	5						+	+
D10	Interactive data visualization technologies in education	Principles of data visualization. Infographics. Classification of infographics. Typology of data visualization methods: Visualization of multidimensional data. Visualization of time-dependent data. Graph visualization. Visualization of the hierarchy. Visualization of geospatial and textual data. Interactive infographics. Interactive learning tools: mental maps, interactive exercises, word cloud. Ways to improve the efficiency of visualization. Data visualization tools.							+	+
D11	Research work of a doctoral	The purpose of the research work of a doctoral candidate is the formation of the level of knowledge, skills and abilities	123	+	+	+	+	+	+	+

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student	of research activities necessary for the implementation of professional activities and preparation for the defense of a doctoral dissertation. Includes independent scientific research, foreign scientific internship, preparation of scientific publications, completion of a doctoral dissertation.								

20. Coordination of the planned learning outcomes with the methods of teaching and evaluation within the module

Learning outcomes	Planned learning outcomes for the module	Teaching methods	Assessment methods
LO1	Reasonably applies digital tools, online services and Web technologies, selects effective interactive data visualization technologies to solve interdisciplinary and research tasks of digital pedagogy.	Interactive lecture, discussion	Test, colloquium, control tasks
LO2	Applies modern technologies and methods of professionally-oriented training in pedagogical activity for innovative solutions to applied and scientific problems of digital pedagogy.	Interactive lecture, discussion	Test, colloquium, control tasks
LO3	Uses information and communication technologies based on a scientific and pedagogical approach to design and develop digital educational services and resources.	Interactive lecture, discussion, panel discussion	Test, colloquium, control tasks
LO4	Demonstrates current knowledge of the methodology of scientific and pedagogical research, justifies the choice of methods of analysis and solving professional pedagogical tasks	Interactive lecture, panel discussion,	Test, colloquium, control tasks
LO5	Possesses the skills of designing the information and educational environment, interaction of participants in the educational process, uses digital technologies to implement professional tasks.	Interactive lecture, discussion, panel discussion, group work	Test, colloquium, control tasks
LO6	He has the skills to analyze methodological problems that arise when solving research and practical problems, including in the interdisciplinary fields of digital pedagogy	Interactive lecture, method of demonstration examples practical method of teaching; group work	Test, colloquium, control tasks
LO7	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	Interactive lecture, method of demonstration examples practical method of teaching; group work	Test, colloquium, control tasks, program project

21. Criteria for assessing the achievability of learning outcomes

Codes of LO	Criteria
LO1	**Knows**: academic principles of building a scientific text, stages of preparing a publication. **Can**: draw up bibliographic lists, compile annotations of scientific articles. **Owns**: methods of preparing scientific articles for publication in journals, business communication skills in professional activities.
LO2	**Knows**: the basics of the methodology of scientific and pedagogical research, the structure of pedagogical research and the stages of its implementation. **Can**: substantiate and choose methods of scientific and pedagogical research, process experimental data of a pedagogical experiment. **Owns**: methodology for conducting and analyzing the results of a pedagogical experiment.
LO3	**Knows**: the basics of theoretical, methodological and technological achievements of domestic and foreign science in the field of digital pedagogy. **Can**: apply modern methods of scientific research, process experimental data in solving research and practical problems. **Owns**: the skills of analyzing methodological problems in organizing the educational process with elements of digital learning.
LO4	**Knows**: professionally-oriented learning technologies, innovative learning technologies. **Can**: apply the technologies of professionally oriented learning to solve applied and scientific problems. **Owns**: pedagogical techniques and innovative methods in professional activities.
LO5	**Knows**: theoretical and practical foundations of digital pedagogy, features of the organization of the information educational environment, methodology and a set of innovative teaching methods. **Can**: apply methods of organizing information and communication interaction between participants in the educational process using digital educational resources. **Owns**: technologies for creating an information educational environment.
LO6	**Knows**: the basics of designing and developing digital educational resources, digital educational platforms. **Can**: apply digital educational resources in the information and educational environment. **Owns**: technologies for designing and developing digital educational resources.
LO7	**Knows:** basic digital tools, online services and Web technologies **Can:** choose effective technologies for interactive data visualization to solve interdisciplinary and research problems of digital pedagogy **Owns:** technologies for the use of digital learning tools

22. The Graduate Model

Graduate Attributes:
- High professionalism in the field of IT-technologies and pedagogic
- Emotional intelligence
- Adaptability to global challenges
- Leadership
- Entrepreneurial mindset
- Global citizenship
- Understanding the principles and culture of academic integrity

Types of competencies	Description of competencies
Behavioural skills and personal competencies (Soft skills)	Improves and develops his intellectual and general cultural level, strives for the development and growth of personal qualities, creative abilities to achieve the chosen goals, revaluation of accumulated experience. The ability to demonstrate a scientific worldview in their professional activities based on deep knowledge of the methodology of pedagogy, scientific research and digital pedagogy, relevant areas of pedagogical science.
Professional competencies (Hard skills, Digital skills)	The ability to apply the skills of written scientific communication in professional activities. Possesses fundamental knowledge of the methodology of pedagogy and scientific research. Integrates modern methods and technologies into the educational process of the continuing education system. Uses innovative tools of digital pedagogy to form an information and educational environment. Applies scientific approaches to the design, development and evaluation of the quality of digital educational resources, taking into account the requirements of pedagogical design in the information and educational environment. Designs, develops and uses digital educational products and services to solve interdisciplinary and research tasks of digital pedagogy.

	Ability to design and develop applied and educational software products and applications

Compilers:
Members of the working group:

Head of Department AMaI, PhD, Associate professor		A.B. Keldibekova
Professor of the Department AMaI		D.A. Kazimova
Associate professor of the Department AMaI		Ye. A. Spirina
Assistant professor of the Department AMaI		N. A. Gorbunova
Senior Lecturer of the Department AMaI		D.G. Aliyeva
Head of the Department of Education of the Karaganda region		G.S. Zhunusova

The educational program was reviewed by the Faculty Council _____19. 04. 2024_____ Protocol № 7

The educational program was considered at a meeting of the Academic Council from _29. 04. 2024_ Protocol № 5

The educational program was reviewed and approved at a meeting of the University Board 24.05.2024 Protocol № 8

Member of the Board, Vice-Rector for Academic Affairs — **M.M. Umurkulova**

Director of the Department for Academic Work — **T.M Khassenova**

Dean of the Faculty of Mathematics and Information tehnology — **A.O. Tanin**

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

8D01103 - Digital pedagogy

The purpose of the Plan is to contribute to improving the quality of the conditions for the implementation of the educational program, taking into account the current requirements of the labor market and the achievements of modern science.

Target indicators

№	Indicators	Unit of measurement	2024-2025	2025-2026	2026-2027	2027-2028
1	**Human resources development**					
1.1	Increase in the number of teachers with academic degrees	Number of people				+1
1.2	Advanced training in the teaching profile	Number of people	1	+1	+1	+1
1.3	Involvement of guest lecturers in teaching	Number of people	1	-	-	1
2	**Promotion of the EP in the ratings**					
2.1	IAAR	Position	2	2	2	2
3.	**Development of educational and scientific-methodical literature, electronic resources**					
3.1	Training manuals	Number	-	+1	-	-
3.2	Electronic textbook	Number	-	-	-	+1
3.3	Video/audio lectures	Number	-	-	+1	-
4.	**Development of educational and laboratory facilities**	Number				
4.1	Purchase of equipment	Number	+1	-	-	+1
5.	**Updating the content of the EP**					
5.1	Updating the learning outcomes and the list of disciplines taking into account the requirements of the labor market, scientific achievements, professional standards	Year	+	-	-	+
5.2	Introduction of new teaching methods	Year			+	
5.3	Passage of specialized accreditation	Year	+			

Head of the Department of Applied Mathematics and Computer Science   **A.B. Keldibekova**