1. CHARACTERISTIC OF THE EDUCATIONAL PROGRAM

The purpose of the educational program: Preparation of masters of pedagogical sciences capable of solving of the physicist-teacher and a physicist-researcher professional tasks in the field of fundamental and applied physics.

1.1 GENERAL INFORMATION

Type of educational program	current
Name of the educational program	7M01502-Physics
Field of education	7M01 Pedagogical Sciences
Training direction	7M015 Training for teachers on natural science subjects
The group of the educational program	M011 Training of physics teachers
License to engage in educational activities	The Educational program is implemented on the basis of the Appendix to the License № KZ04LAA00017104 dated September 27, 2019 in the direction of training 7M01502-Physics, issued by the Committee for control in the field of education and science of Ministry of Education and Science of the Republic of Kazakhstan.
Number and Date of Registration/ Update in the Register of EP	No.7M01500115, 04.08.2023y.
Educational level by NQF	Master's degree, level 7
Awarded degree	Master of Pedagogical Sciences in the Educational Program 7M01502 - Physics
Accreditation	«Independent accreditation and rating agency», №. AB 2442, accreditation validity period 24.05.2019 - 23.05.2024 *(Specialized accreditation)*
Rating of the educational program	IAAR – 1st place, 2022
The total amount of academic credits	120
Study duration	2 years

1.2 VISION, MISSION, PROGRAM GOAL, VALUES, UNIVERSITY GRADUATE ATTRIBUTES

Vision:

An intellectual platform that develops educators who are open to new ideas and able to lead in a rapidly changing world.

Mission:

Developing teacher leaders, who can create, develop, and disseminate advanced knowledge and values in education for the benefit our country and the world.

Program goal:

Our University aims to become a hub for innovative teaching, learning, research as well as the development of rural education in Central Asia.

Values:

Integrity, commitment, care.

University graduate attributes:

- Self-guided learners and reflexive practitioners
- Responsible personalities with moral and ethical values
- Professionals with deep subject knowledge and digital skills
- Creative and critical thinkers and excellent team players and communicators
- Adaptive leaders in teaching and learning

- Diverse, inclusive and for equality of opportunity in society

1.3. THE RATIONALE BEHIND THE EDUCATION PROGRAM

The program of training of masters of pedagogical sciences in the educational program 7M01502-Physics is determined by the results of training and the formation of professional competencies in accordance with the requirements of the Bologna Declaration.

1.4. DISTINCTIVE FEATURES OF THE EDUCATIONAL PROGRAM

Academic mobility	-
Double-degree program	-

Coincidence with similar EP of leading universities in the near and far abroad

Moscow State Pedagogical University – 42%,

Herzen State Pedagogical University of Russia – 33%.

1.5. GRADUATE CAREER OPPORTUNITIES

- higher educational institutions;
- government bodies in the field of education, physical industry;
- research centers in the field of physics, state bodies for the management of industrial and scientific and educational complexes;
- experimental and research, production and technological, calculation and analytical, design and technological, production institutions;
- management organizations: government bodies, education departments, organizations of various forms of ownership, using physical research methods in their work.

1.6. AREAS OF PROFESSIONAL COMPETENCE

Area of professional competence 1

- in the field of Education (physics teacher in high school, Lyceum, gymnasium, College, University);

Area of professional competence 2

- production and management activities in state institutions of various levels (Department of education, administration, kindergarten organizations);

Area of professional competence 3

-Field of research (specialized research organizations, research centers).

1.7. EDUCATIONAL PROGRAM LEARNING OUTCOMES:

LO 1 - Studies the current problems of modern philosophy of science, the professional foundations of orientation and speech communication (listening, reading, speaking, writing), business communication skills (writing, e-mail, etc.);

LO 2 - Uses the theoretical and methodological foundations of the development of pedagogical and psychological science, teaching methods, management and development processes, the nature and content of psychological and pedagogical research in professional activities;

LO 3 - Applies the methods of designing, organizing and evaluating the implementation of the educational and scientific process;

LO 4 - Implements modern educational methods and technologies in pedagogical activity, including for diagnostics and evaluation of the quality of the educational process;

LO 5 - Implements methodological models, techniques, technologies and teaching methods;

LO 6 - Uses modern problems of education and science, theoretical and practical knowledge of classical and modern physics in solving specific educational and scientific problems;

LO 7 - Conducts scientific work using research and digital skills;

LO 8 - Uses modern computer technology in his professional activities, including in modeling and visualization of complex physical phenomena and processes.

Matrix for correlating EP learning outcomes with graduate attributes

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8
AG1	*	*		*		*	*	
AG2		*						*
AG3	*	*	*	*			*	*
AG4			*		*			
AG5			*		*			
AG6	*			*		*	*	*

1.8. REFERENCES

The educational program is developed based on the following legal acts:

1) The State general education standard of postgraduate education. Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2.

2) Professional standard "Teacher" Order of the Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan dated June 8, 2017 No. 133.

2. CONTENT OF THE EDUCATIONAL PROGRAM

№	Code and name of modules	Total credits by module	№	Name of subject and code	Credits by subjects	Cycle/component
1	**ISE -1** **Integration of Science and education**	**16**	1	ISE 501 History and philosophy of science	4	CC/ UC
			2	ISE 502 Foreign language (professional)	4	CC/ UC
			3	ISE 503 Higher School Pedagogy	4	CC/ UC
			4	ISE 504 Psychology of management	4	CC/ UC
2	**ITTPh – 2** **Innovative technologies for teaching physics**	**15**	1	ITTPh 501 Methods of teaching physics in high school	5	MC/ UC
			2	ITTPh 502/1 Teaching physics using digital resources	5	CC/ OC
				ITTPh 502/2 Methods of control and evaluation on physical education		
			3	ITTPh 503/1 Planning and organization of scientific research	5	CC/ OC
				ITTPh 503/2 Actual problems of modern physics		
3	**SCPh – 3** **Special chapters in physics**	**27**	1	SCPh 501/1 Special chapters of Mechanics and Molecular Physics	5	MC/ OC
				SCPh 501/2 Selected chapters of Thermo physics		
			2	SCPh 502/1 Workshop on solving complex physical problems 1	5	MC/ OC
				SCPh 502/2 Physical foundations of ecology		

			3	SCPh 503/1 Condensed matter physics	5	MC/ OC
				SCPh 503/2 Quantum field theory		
			4	SCPh 601/1 Special chapters of electromagnetism and optics	6	MC/ OC
				SCPh 601/2 Physics and its methodological foundations		
			5	SCPh 602/1 Workshop on solving complex physical problems 2	6	MC/ OC
				SCPh 602/2 Project technology for teaching physics		
4	**FMPhN – 4** **Fundamentals of modern physics and nanophysics**	**16**	1	FMPhN 501/1 Alternative Energy Sources	5	CC/ OC
				FMPhN 501/2 CLIL method in teaching physics		
			2	FMPhN 601/1 Interactive visualization in teaching physics	5	MC/ OC
				FMPhN 601/2 Numerical methods in physics		
			3	FMPhN 602/1 Physical crystallography and fundamentals of nanotechnology	6	MC/ OC
				FMPhN 602/2 Methods of in-depth study of the General physics course		
5	**RW – 5** **Research work**	38	1	RW 601 Pedagogical practice	4	CC/ UC
			2	RW 5 (6) 02 Research practice	10	MC/ UC
			3	RW 503 Undergraduate research work, including internships and the implementation of a Master's thesis (MRW)	1	MSRW
				RW 504 Intensive course	1	
			4	RW 503 Undergraduate research work, including internships and the implementation of a Master's thesis (MRW)	2	MSRW
				RW 505 Intensive course	2	
			5	RW 603 Undergraduate research work, including internships and the implementation of a Master's thesis (MRW)	3	MSRW
				RW 604 Intensive course	4	
			6	RW 603 Undergraduate research work, including internships and the implementation of a Master's thesis (MRW)	11	MSRW
6	**FC** **Final certification**	8	1	FC 601 Registration and defense of the Master's thesis (RDMT)	8	FA
TOTAL:		**120**			**120**	