CONTENT OF THE EDUCATIONAL PROGRAM

№	Code and name of modules	Total credits by	№	Name of subject and code	Credits by subjects	Cycle/component
1	**ORW – 1** **Organization of research work**	**9**	1	ORW 701 Academic writing	4	CC/ UC
			2	ORW 702 Methods of scientific research	5	CC/ UC
2	**PM -2** **Professional module**	**16**	1	PM 701 Management in physics education	6	MC/ UC
			2	PM 702/1 Methodological foundations of differentiated teaching of physics at school	5	MC/ OC
				PM 702/2 Commercialization of research and development		
			3	PM 703/1 Didactics of teaching physics in higher and secondary schools	5	MC/ OC
				PM 703/2 Innovative technologies in physical education and scientific research		
3	**RT – 3** **Professional training**	**143**	1	PT 801 Pedagogical practice	10	CC/ UC
			2	PT 7(8)02Research practice	10	MC/ UC
			3	PT 703 Doctoral student research work, including internship and doctoral dissertation	3	DSRW
				Methods of scientific research	2	
			4	PT 703 Doctoral student research work, including internship and doctoral dissertation	20	DSRW
				Intensive courses	5	
			5	PT 803 Doctoral student research work, including internship and doctoral dissertation	18	DSRW
				Intensive courses	2	
			6	PT 803 Doctoral student research work, including internship and doctoral dissertation	23	DSRW
				Intensive courses	2	
			7	PT 903 Doctoral student research work, including internship and doctoral dissertation	30	DSRW
			8	PT 903 Doctoral student research work, including internship and doctoral dissertation	18	DSRW
4	**FC** **Final certification**	12	1	FE 901 Writing and defense a doctoral dissertation	12	FE
TOTAL:		**180**			**180**	

2.1. DESCRIPTION MODULES AND DISCIPLINES

ORW – 1 ORGANIZATION OF RESEARCH WORK

The ability to analyze scientific and informational texts at the academic level in organizing research work, conduct research, including various research methods related to the subject area of research.

№	Name of subject and code	Cycle/component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	ORW 701 Academic writing	CC / UC	4	The discipline considers principles and techniques of creating a scientific text, rules creating scientific texts of various genres (scientific, scientific-educational, etc.), creating and editing a scientific text for publication, and features of the academic tradition in a particular field of scientific activity. The discipline forms the skills of structured presentation of their own ideas, the ability to create scientific and scientific-informational texts of various types, taking into account the specifics of academic discourse.	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO2, LO9	Written
2	ORW 702 Methods of scientific research	CC / UC	5	The discipline "Methods of scientific research", carried out in order to provide the student with the information necessary for effective writing of scientific research work, carries out a comprehensive analysis of various scientific texts, starting with the concept of research. The analysis of research works is carried out, focusing on the writing of their methodology section. The doctoral student is given the opportunity to develop a research plan that he considers appropriate, combining the experience and knowledge gained up to this stage in his field of research. In addition, detailed information is provided on the set of studies that are included in the design of the research work. This contributes to the systematic recording of the doctoral student's research work and informing about other methods of scientific research. It will also improve knowledge about the information necessary for the course of the research process, such as the use of quantitative, qualitative, mixed research methods, ways of collecting data, research ethics, data analysis	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO1, LO3, LO4, LO7	Written

PM – 2 Professional module

Description of the module: The module is represented by a set of compulsory disciplines that contribute to the development of information literacy in all spheres of one's life and activity. The disciplines of the module are aimed at the formation of the ideological, civil and moral positions of the future specialist, competitive on the basis of knowledge of information and communication technologies, orientation towards a healthy lifestyle, self-improvement and professional success. Students get a general understanding of the development of philosophy and the influence of the methodology of reflection on the development of science, interprets the content and specific features of the mythological, religious and scientific worldview, analyze the main stages of the historical development of Kazakhstan.

№	Name of subject and code	Cycle/component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	PM 701 Management in physics education	MC / UC	6	The discipline examines the theoretical and methodological foundations of management in the study of physics, the main criteria for the effectiveness of management, control technology and planning of the educational process. The content of the discipline contributes to the development of skills in solving professional problems through modern technology and effective management tools, solving administrative issues in the management of educational organizations	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO3, LO5, LO6, LO8	Written
2	PM 702/1 Methodological foundations of differentiated teaching of physics at school	MC / OC	5	The discipline studies the problems of teaching methods of physics in the profile direction, improving the effectiveness of teaching physics based on internal differentiation at all stages of education, systematization of methodological techniques for mastering theoretical material, improving the level of pedagogical skills and professional competence of the teacher, developing individual strategies and teaching methods at the level of capabilities, abilities, characteristics of students	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO1, LO5, LO6, LO8	Written
	PM 702/2 Commercialization of research and development			The discipline studies the methodological foundations of evaluating the effectiveness of projects in the educational environment submitted for implementation, the content of the stages of commercialization of research results, technical features of business planning, the organization of the main scientific and technical activities, issues related to the protection of intellectual property and the right to use them in the process	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO3, LO4, LO5, LO7	Written

3	PM 703/1 Didactics of teaching physics in higher and secondary schools	MC / OC	5	The purpose of the discipline is to develop and improve the pedagogical thinking of doctoral students, to analyze the problems of didactics of higher and secondary schools, based on the principle of continuity of scientific knowledge. Doctoral students can formulate and systematize the principles of secondary and higher school didactics, analyze the goals, objectives and content of teaching physics in different educational institutions	- collaboration; - individual and jointresearch works; - discussions; - work with varioussources of information (books, Internet, documents, etc.)	LO6, LO7, LO8	Written
	PM 703/2 Innovative technologies in physical education and scientific research			The purpose of the discipline is the analysis of modern technologies in the field of education and science, scientific and pedagogical activity and the integration of innovative technologies. Doctoral students can apply innovation in practice, contribute to the development of new conceptual approaches in physical education and information technology, introduce innovative management in science.	*- collaboration;* *- individual and jointresearch works;* *- discussions;* *- work with varioussources of information (books, Internet, documents, etc.)*	LO3, LO4, *LO8, LO9, LO10*	*Written*

PT – 3 Professional training

Module description: As part of the module, students develop the ability to interpersonal, social and professional communication in Kazakh, Russian and foreign languages. Students develop practical skills in oral communication in a non-native language, writing and academic writing.

№	Name of subject and code	Cycle/component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	PT 801 Pedagogical practice	CC/ UC	5	Pedagogical practice in the system of postgraduate education is a component of professional training for scientific and pedagogical activities in a higher educational institution and is a type of practical activity of doctoral students in the implementation of the educational process in higher education, including teaching special disciplines, organizing student educational activities, scientific and methodological work in the subject, obtaining skills and abilities of	Educational proscess	LO3, LO5, LO6, LO7, LO8	Report
2	PT 801 Pedagogical practice	CC/ UC	5				

				practical teaching. The pedagogical practice of doctoral students is aimed at studying the foundations of pedagogical and educational-methodical work in higher educational institutions, mastering the pedagogical skills of conducting certain types of training sessions in the disciplines of the department. The pedagogical practice of a doctoral student is based on the development of both theoretical and practice-oriented components of doctoral training, acquired in the process of mastering the academic disciplines of the basic and variable parts of the EP and prepares doctoral students for setting and solving research problems in the course of pedagogical and research activities, as well as for writing a doctoral dissertation			
3	PT 702 Research practice	MC/ UC	5	Research practice is a type of professional practice of doctoral students, which is carried out in order to familiarize themselves with the latest theoretical, methodological and technological achievements of domestic and foreign science, with modern methods of scientific research, processing and interpretation of experimental data, as well as consolidating the practical skills of their application in dissertation research. Research practice is an integral part of the entire doctoral student training system and provides for the mastery of students in research activities in accordance with the requirements of the State Educational Standard of the Republic of Kazakhstan. The bases of research practice are the graduating departments of the university, research organizations corresponding to the profile of the specialty being trained (or related organizations). Doctoral studies are a logical continuation of multilevel university education, which involves broad fundamental education within the framework of doctoral studies, followed by in-depth specialized training and independent scientific work. This is a test of the ability to conduct an independent scientific search, to assess their capabilities in determining the path of their professional and scientific growth	Experimental work	LO4, LO5, LO8	Report
4	PT 802 Research practice	MC/ UC	5				

5	PT 703 Doctoral student research work, including internship and doctoral dissertation	DSRW	3	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the relevant industries or fields of activity, including abroad	Experimental work	LO1, LO3, LO7, LO8	Report
	Methods of scientific research		2	In the course of studying the discipline, a doctoral student, using the experience and knowledge accumulated up to this period, depending on his field of study, will be able to develop and draw up a research plan that he considers acceptable, as well as the possibility of choosing a dissertation topic, how to approach the choice of domestic and foreign scientific supervisors. In addition, sufficient information will be given about the types of research contained in the design of the research paper. Thus, the doctoral student will be given the opportunity to systematize the writing of a research paper and get acquainted with other methods of scientific research. Knowledge about the application of quantitative, qualitative, mixed research methods, methods of data collection, research ethics, information necessary for the research process, such as data analysis, will be improved.			
6	PT 703 Doctoral student research work, including internship and doctoral dissertation	DSRW	20	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the relevant industries or fields of activity, including abroad	Experimental work	LO1, LO3, LO7, LO8	Report
	Intensive courses		5	In the course of studying the discipline, a doctoral student, using the experience and knowledge			

				accumulated up to this period, depending on his field of study, will be able to develop and draw up a research plan that he considers acceptable, as well as the possibility of choosing a dissertation topic, how to approach the choice of domestic and foreign scientific supervisors. In addition, sufficient information will be given about the types of research contained in the design of the research paper. Thus, the doctoral student will be given the opportunity to systematize the writing of a research paper and get acquainted with other methods of scientific research. Knowledge about the application of quantitative, qualitative, mixed research methods, methods of data collection, research ethics, information necessary for the research process, such as data analysis, will be improved.			
7	PT 803 Doctoral student research work, including internship and doctoral dissertation	DSRW	18	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the relevant industries or fields of activity, including abroad	Experimental work	LO1, LO3, LO7, LO8	Report
	Intensive courses		2	In the course of studying the discipline, a doctoral student, using the experience and knowledge accumulated up to this period, depending on his field of study, will be able to develop and draw up a research plan that he considers acceptable, as well as the possibility of choosing a dissertation topic, how to approach the choice of domestic and foreign scientific supervisors. In addition, sufficient information will be given about the types of research contained in the design of the research paper. Thus, the doctoral student will be given the opportunity to systematize the writing of a research paper and get acquainted with other methods of scientific research. Knowledge about the application of quantitative, qualitative, mixed			

				research methods, methods of data collection, research ethics, information necessary for the research process, such as data analysis, will be improved.			
8	PT 803 Doctoral student research work, including internship and doctoral dissertation	DSRW	23	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the relevant industries or fields of activity, including abroad	Experimental work	LO1, LO3, LO7, LO8	Report
	Intensive courses		2	In the course of studying the discipline, a doctoral student, using the experience and knowledge accumulated up to this period, depending on his field of study, will be able to develop and draw up a research plan that he considers acceptable, as well as the possibility of choosing a dissertation topic, how to approach the choice of domestic and foreign scientific supervisors. In addition, sufficient information will be given about the types of research contained in the design of the research paper. Thus, the doctoral student will be given the opportunity to systematize the writing of a research paper and get acquainted with other methods of scientific research. Knowledge about the application of quantitative, qualitative, mixed research methods, methods of data collection, research ethics, information necessary for the research process, such as data analysis, will be improved.			
9	PT 903 Doctoral student research work, including internship and doctoral dissertation	DSRW	30	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the	Experimental work	LO1, LO3, LO7, LO8	Report

				relevant industries or fields of activity, including abroad			
10	PT 903 Doctoral student research work, including internship and doctoral dissertation	DSRW	18	The research work of a doctoral student is carried out by a doctoral student under the guidance of a scientific supervisor. The direction of research work of a doctoral student is determined in accordance with the doctoral program and the topic of the doctoral dissertation. Within the framework of DRW, it is envisaged to undergo a scientific internship in scientific organizations and/or organizations of the relevant industries or fields of activity, including abroad	Experimental work	LO1, LO3, LO7, LO8	Report

FE – Final certification

Module description: The module contributes to the systematic writing of the doctoral student's research work and ensures the design of the doctoral dissertation in accordance with the requirements. In the course of the module, the use of quantitative, qualitative, combined research methods of scientific research, ways of collecting data, research ethics and preparation for protection, the course of protection are considered.

№	Name of subject and code	Cycle/component	Credits	Subject discruption	Teaching methods	LO by EP	Assessment methods
1	FC 901 Writing and defense a doctoral dissertation	FE	12	Preparation and defense of a doctoral dissertation	Registration and defense of the thesis	-	Defense