



**CURRICULUM**  
of Educational Program on enrollment for 2023-2024 academic year

Educational program 8D05301 - "Applied and engineering physics"  
Group of educational programs D090 - "Physics"

Form of study: full-time

Duration of study: 3 year

Academic degree: Philosophy Doctor (PhD)

Discipline code	Name of disciplines	Cycle	Total amount in credits	Total hours	Classroom amount lec/lab/pr	SIS (including TESIS) in hours	Form of control	Allocation of face-to-face training based on courses and semesters									
								1 course			2 course						
								1 semester	2 semester	3 semester	4 semester	5 semester	6 semester				
<b>CYCLE OF BASIC DISCIPLINES (BD)</b>																	
<b>M-1. Module of basic training (university component)</b>																	
MET322	Scientific research methods	BD UC	5	150	2/0/1	105	E	5									
LNG305	Academic writing	BD UC	5	150	0/0/3	105	E	5									
<b>component of choice</b>																	
PHY319	Physics and technique of saving and renewable energy	БД КБ	5	150	2/0/1	105	E	5									
PHY305	Synthesis and Physical Properties of Low-dimensional Structures				2/0/1												
<b>CYCLE OF PROFILE DISCIPLINES (PD)</b>																	
<b>M-2. Module of professional activity (component of choice)</b>																	
PHY320	Semiconductor heterostructures and devices based on them	ПД КБ	5	150	2/0/1	105	E	5									
PHY301	Methods of computational experiment				2/0/1												
PHY321	Computer simulation of engineering tasks	ПД КБ	5	150	2/0/1	105	E	5									
PHY302	Physicochemical methods of materials research																
<b>M-3. Practice-oriented module</b>																	
AAP350	Pedagogical practice	BD UC	10						10								
AAP355	Research practice	PD UC	10							10							
<b>M-4. Experimental research module</b>																	
AAP336	Research work of a doctoral candidate, including internships and completion of a doctoral dissertation	RWDS UC	5						5								
AAP347	Research work of a doctoral candidate, including internships and completion of a doctoral dissertation	RWDS UC	40							20	20						
AAP356	Research work of a doctoral candidate, including internships and completion of a doctoral dissertation	RWDS UC	60									30	30				
AAP348	Research work of a doctoral candidate, including internships and completion of a doctoral dissertation	RWDS UC	18												18		
<b>M-5. Module of final attestation</b>																	
ECA303	Writing and defending a doctoral dissertation	FA	12												12		
<b>Total based on UNIVERSITY:</b>																	
								30	30	30	30	30	30	30			
								60	60	60	60	60	60	60			

Number of credits for the entire period of study					
Cycle code	Cycles of disciplines	Credits			
			university component (UC)	component of choice (CCH)	Total
BD	Cycle of basic disciplines		20	5	25
PD	Cycle of profile disciplines		10	10	20
	<i>Total for theoretical training:</i>	<i>0</i>	<i>30</i>	<i>15</i>	<i>45</i>
	RWDS				123
FA	Final attestation	12			12
	<b>TOTAL:</b>	<b>12</b>	<b>30</b>	<b>15</b>	<b>180</b>

Decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 5 "24" 11 2022 y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 3 "17" 11 2022 y.

Decision of the Academic Council of the Institute M&M. Protocol № 2 "17" 10 2022 y.

Vice-Rector for Academic Affairs

Director of M&M Institute

Head of the MN&EP Department

Specialty Council representative from employers

Zhautikov B.A.

Rysbekov K.B.

Kudaibergenov K.K.

Serikkanov A.S.