



**CURRICULUM**  
of Educational Program on enrollment for 2024-2025 academic year

Educational program 8D07114 - "Nanomaterials and Nanotechnology"  
Group of educational programs D108 - "Nanomaterials and Nanotechnology"

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 TSIS) 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>														
PHY316	Advanced structural technology hardening	BD CCH	5	150	2/0/1	105	E	5						
PHY319	Physics and technique of saving and renewable energy				2/0/1									
MNG350	Sustainability Science				2/0/1									
<b>CYCLE OF PROFILE DISCIPLINES (PD)</b>														
<b>M-2. Module of professional activity (component of choice)</b>														
PHY302	Physicochemical methods of materials research	PD CCH	5	150	2/0/1	105	E	5						
PHY320	Semiconductor heterostructures and devices based on them				2/0/1									
PHY318	Software for structuring materials	PD CCH	5	150	2/0/1	105	E	5						
PHY321	Computer simulation of engineering tasks				2/0/1									
<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
									60	60	60	60	60	60

Number of credits for the entire period of study					
Cycle code	Cycles of disciplines	Credits			Total
			university component (UC)	component of choice (CCH)	
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 № 12 or "22" 04 2024 y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 8 or "19" 04 2024 y.

Decision of the Academic Council of the Institute \_\_\_\_\_, Protocol № 7 or "29" 03 2024 y.

Vice-Rector for Academic Affairs  
 Director of M&M Institute  
 Head of the MN&EP Department  
 Specialty Council representative  
 from employers

Uskenbayeva R.K.  
 Rysbekov K.B.  
 Kudaibegenov K.K.  
 Idrisova T.K.