



# CURRICULUM

of Educational Program on enrollment for 2022-2023 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)

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
CYCLE OF BASIC DISCIPLINES (BD)													
M-1. Module of basic training (university component)													
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					
component of choice													
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								
CYCLE OF PROFILE DISCIPLINES (PD)													
M-2. Module of professional activity (component of choice)													
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								
M-3. Practice-oriented module													
AAP350	Pedagogical practice	BD UC	10						10				
AAP355	Research practice	PD UC	10							10			
M-4. Experimental research module													
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
M-5. Module of final attestation													
ECA303	Writing and defending a doctoral dissertation	FA	12										12
Total based on UNIVERSITY:								30	30	30	30	30	30
								60		60		60	30



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>	12	30	15	180

Decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 13 от "28" 04 2022 y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 7 от "26" 04 2022 y.

Decision of the Academic Council of the Institute M&M. Protocol № 5 от "20" 12 2021 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.

Kakimov U.K.

Serikkanov A.S.