



APPROVED

Chairman of the Management Board-  
Rector of Kazntu named after K.Satbayev  
Begentaev  
2022 y.

**CURRICULUM**  
of Educational Program on enrollment for 2022-2023 academic year  
Educational program 8D07113 - "Additive manufacturing"  
Group of Educational programs D103 - "Mechanics and metalworking"

Form of study: full-time

Duration of study: 3 year

Academic degree: Doctor of Philosophy (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. Technical training module (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>																	
MSM306	Virtual production	BD CCH	5	150	2/0/1	105	E	5									
MSM307	Advanced Digital factory																
<b>CYCLE OF PROFILE DISCIPLINES (PD)</b>																	
<b>M-2. Additive manufacturing module (component of choice)</b>																	
MSM303	Advanced 3D nanoprnting technologies	PD CCH	5	150	2/0/1	105	E	5									
IND311	Advanced production systems	PD CCH	5	150	2/0/1	105	E	5									
IND313	Development of advanced control systems																
IND300	Digital production																
<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			
		university component (UC)	component of choice (CCH)	RWDS	Total
BD	Cycle of basic disciplines	20	5		25
PD	Cycle of profile disciplines	10	10		20
	<b>Total for theoretical training:</b>	<b>0</b>	<b>30</b>	<b>15</b>	<b>45</b>
	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.Satbayev. Protocol № 3 or "29.04.2022y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satbayev. Protocol № 7 or "26.04.2022y.

Decision of the Academic Council of the Institute E&ME. Protocol № 7 or "22.04.2022y.

Vice-Rector for Academic Affairs B.A. Zhautikov

Director of the Institute of E&ME K.Yelemessov

Head of the Department ME,SC&M M.Issametova

Representative of the Council for EP from Employers I.Dyusebaev