

M-7. Experimental research module											
AAP251	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	2					2			
AAP241	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	3					3			
AAP254	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	5						5		
AAP255	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	14							14	
M-8. Module of final attestation											
ECA212	Preparation and defense of a master's thesis	FA	8							8	
Total based on UNIVERSITY:								23	37	30	30
								60		60	

**Federal State Autonomous Educational Institution of Higher Education
National Research Tomsk Polytechnic University**

**Educational program "Production of products from nanostructured materials and additive technologies"
Course of study 22.04.01 - "Materials science and technology of materials"**

Discipline code	Name of disciplines	Cycle	Total amount in credits	Total hours	Classroom amount lec/lab/pr	SIS (including TSIS) in	Form of control	Allocation of face-to-face training based on			
								1 course		2 course	
								1 semester	2 semester	3 semester	4 semester
M1 Block 1. Disciplines (modules)											
M1.BM1 Модуль общенаучных дисциплин											
PHY728	Philosophical and methodological problems of science and technology	BD UC	3	108	1/0/1	76	Exam		3		
PHY729	Professional training in English	BD UC	6	216	0/0/4	152	Test	3	3		
M1.BM2 Module of general professional disciplines											
PHY730	Materials science and technologies of modern and promising materials	BD UC	6	216	1/1/1	152	Exam		6		
PHY731	High technologies: from research to business	PD, UC	3	108	1/1/1	60	Exam		3		
PHY732	Powder consolidation processes: regularities and efficiency criteria	PD, UC	3	108	1/1/1	60	Test	3			
PHY733	Technologies of zero-dimensional nanoobjects	BD UC	3	108	1/1/1	60	Test	3			
PHY734	Dimensional effects in nanomaterials	PD, UC	3	108	1/1/1	76	Test		3		
M1.BM1 Interdisciplinary professional module (part formed by participants of educational relations)											
PHY735	Modern methods of structural analysis in materials science*	BD UC	6	216	1/1/1	136	Exam	6			
PHY736	The main directions of development of materials science	PD, UC	3	108	1/1/1	60	Test	3			
PHY737	Technologies for manufacturing products from bulk nanomaterials	PD, UC	3	108	1/1/1	136	Exam		3		
M1.BM2 Module of university-wide elective disciplines											
PHY739	Psychology of communication	BD UC	2	72	1/0/1	40	Test	2			
M1.BM3 Variable interdisciplinary professional module											
M1.BM3.1 "Production of products from nanostructured materials and additive technologies"											
PHY741	Probe methods of diagnostics of the structure and properties of nanomaterials	PD, UC	6	216	1/1/1	152	Exam			6	
PHY742	Modeling of nanomaterials	PD, UC	6	216	1/1/1	152	Exam			6	
PHY743	Methods of testing the performance characteristics of nanomaterials	PD, CCH	6	216	1/1/1	152	Exam			6	
PHY744	Modern technologies of surface hardening										
PHY745	Nanomaterials and the environment	PD, CCH	6	216	1/1/1	152	Exam			6	
PHY746	Technologies for the production of powder composite materials										
M2 Block 2. Dispersed practices, including research.											
M2.B Variable part.											
PHY747	Fundamentals of pedagogical activity	BD UC	1	36				1			
PHY748	Pedagogical practice	BD UC	3	108					3		
PHY749	Research work in the semester	PD, UC	18	648				6	6	6	
M2 Block 2. Practices											
PHY750	Research work (obtaining primary skills of research work)	PD, UC	6	216						6	

PHY751	Research work	PD, UC	9	324							9		
PHY752	Undergraduate Practice	PD, UC	15	540							15		
M3 Block 3. State final certification													
PHY753	Master's final qualifying work (performance, preparation for the defense procedure and defense of the final qualifying work)	FA	9	324							9		
										25	29	33	33

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	15	35
PD	Cycle of profile disciplines		28	25	53
	<i>Total for theoretical training:</i>	<i>0</i>	<i>48</i>	<i>40</i>	<i>88</i>
	RWMS				24
FA	Final attestation	12			8
TOTAL:		12	48	40	120

Decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 12 " 22 " 04 2024 y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 6 " 13 " 04 2024 y.

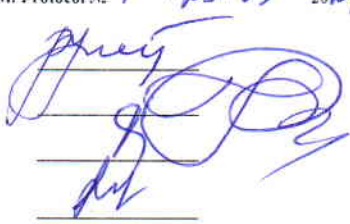
Decision of the Academic Council of the Institute M&M. Protocol № 7 " 15 " 03 2024 y.

Vice-Rector for Academic Affairs

Director of M&M Institute

Head of the MN&EP Department

Specialty Council representative from employers



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