



WORKING CURRICULUM

Academic year	2025-2026 (Spring, Autumn)
Group of educational programs	M103 - "Mechanics and metal working"
Educational program	7M07112 - "Digitalization of engineering manufacturing"
The awarded academic degree	Master of Technical Sciences
Form and duration of study	full time (scientific and pedagogical track) - 2 years

Discipline code	Name of disciplines	Block	Cycle	Total ECTS credits	Total hours	lek/lab/pr Contact hours	in hours SIS (including TSIS)	Form of control	Allocation of face-to-face training based on courses and semesters				Prerequisites
									1 course		2 course		
									1 sem	2 sem	3 sem	4 sem	
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)													
CYCLE OF BASIC DISCIPLINES (BD)													
M1 Engineering training module													
HUM212	History and philosophy of science		BD, UC	3	90	15/0/15	60	E	3				
HUM213	Higher school pedagogy		BD, UC	3	90	15/0/15	60	E	3				
LNG213	Foreign language (professional)		BD, UC	3	90	0/0/30	60	E		3			
HUM214	Psychology of management		BD, UC	3	90	15/0/15	60	E		3			
MSM231	Lean Manufacturing Methodology	1	BD, CCH	5	150	30/0/15	105	E		5			
MSM222	Advanced Materials for Additive Manufacturing	1	BD, CCH	5	150	30/0/15	105	E		5			
IND251	Fundamentals of research activity	2	BD, CCH	5	150	30/0/15	105	E		5			
MNG781	Intellectual property and research	2	BD, CCH	5	150	30/0/15	105	E		5			
MSM232	Digitalization tools for machine-building production for Industrial Manufacturing	1	BD, CCH	5	150	30/0/15	105	E			5		
MNG782	Sustainable development strategies	1	BD, CCH	5	150	30/0/15	105	E			5		
M3 Practice-oriented module													
AAP273	Pedagogical practice		BD, UC	8				R			8		
CYCLE OF PROFILE DISCIPLINES (PD)													
M2 Production digitalization module													
MSM238	3D scanning methods and technologies		PD, UC	5	150	30/0/15	105	E	5				
MSM206	Innovative Processes of Digitization for Industrial Manufacturing		PD, UC	5	150	30/0/15	105	E	5				
MSM219	Computer-integrated production	1	PD, CCH	5	150	30/0/15	105	E	5				
MSM234	Organizational and technical bases of flexible automated production	1	PD, CCH	5	150	30/0/15	105	E	5				
IND249	Actual problems of advanced scientific research	2	PD, CCH	5	150	30/0/15	105	E	5				
IND210	Risk Management in Digital Manufacturing	2	PD, CCH	5	150	30/0/15	105	E	5				
ISO225	Corrosion and Protection Methods in mechanical engineering		PD, UC	5	150	30/0/15	105	E		5			
MSM218	Digital design and modeling		PD, UC	5	150	30/0/15	105	E		5			
MSM210	CAE/PLM for Industrial Manufacturing	1	PD, CCH	5	150	30/0/15	105	E			5		

MSM237	PLM technologies	1	PD, CCH	5	150	30/0/15	105	E			5		
MSM211	Digital Systems of Industrial Manufacturing	2	PD, CCH	5	150	30/0/15	105	E			5		
MSM236	Additive manufacturing technologies and equipment	2	PD, CCH	5	150	30/0/15	105	E			5		
MSM235	Ergonomics of production	3	PD, CCH	5	150	30/0/15	105	E			5		
IND225	Occupational Safety and Security of Digital Industrial Manufacturing	3	PD, CCH	5	150	30/0/15	105	E			5		
MSM224	Wearproof and strengthening coverings	1	PD, CCH	4	120	30/0/15	75	E				4	
IND206	Operating systems of Additive manufacturing	1	PD, CCH	4	120	15/0/15	90	E				4	
M3 Practice-oriented module													
AAP256	Research practice		PD, UC	4				R				4	
M4 Experimental research module													
AAP268	Research work of a master's student, including internship and completion of a master's thesis		RWMS	4				R	4				
AAP268	Research work of a master's student, including internship and completion of a master's thesis		RWMS	4				R		4			
AAP251	Research work of a master's student, including internship and completion of a master's thesis		RWMS	2				R			2		
AAP255	Research work of a master's student, including internship and completion of a master's thesis		RWMS	14				R				14	
M5 Module of final attestation													
ECA212	Registration and protection of the master thesis		FA	8							8		
Total based on UNIVERSITY:									30	30	30	30	
									60		60		

Number of credits for the entire period of study					
Cycle code	Cycles of disciplines	Credits			
		Required component (RC)	University component (UC)	Component of choice (CCH)	Total
GED	Cycle of general education disciplines	0	0	0	0
BD	Cycle of basic disciplines	0	20	15	35
PD	Cycle of profile disciplines	0	24	29	53
Total for theoretical training:		0	44	44	88
RWMS	Research Work of Master's Student				24
ERWMS	Experimental Research Work of Master's Student				0
FA	Final attestation				8
TOTAL:					120

Decision of the Educational and Methodological Council of KazNRTU named after K.Satpayev. Minutes № 3 dated 20.12.2024

Decision of the Academic Council of the Institute. Minutes № 3 dated 19.12.2024

Signed:

Governing Board member - Vice-Rector for Academic Affairs

Uskenbayeva R. K.

Approved:

Vice Provost on academic development

Kalpeyeva Z. B.

Head of Department - Department of Educational Program
Management and Academic-Methodological Work

Zhumagaliyeva A. S.

Director of the Institute - A.Burkitbaev Institute of Energy
and Mechanical Engineering

Yelemesov K. .

Department Chair - Mechanical Engineering

Nugman E. .

Representative of the Academic Committee from Employers
____Acknowledged____

Andreev V. I.

