



WORKING CURRICULUM

Academic year	2025-2026 (Autumn, Spring)
Group of educational programs	B064 - "Mechanics and metal working"
Educational program	6B07105 - "Industrial engineering"
The awarded academic degree	Bachelor of engineering and technology
Form and duration of study	full time - 4 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		3 course		4 course			
									1 sem	2 sem	3 sem	4 sem	5 sem	6 sem	7 sem	8 sem		
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)																		
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E	5									
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E	5									
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E		5								
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E		5								
M2 Module of physical training																		
KFK101	Physical culture I		GED, RC	2	60	0/0/30	30	E	2									
KFK102	Physical culture II		GED, RC	2	60	0/0/30	30	E		2								
KFK103	Physical culture III		GED, RC	2	60	0/0/30	30	E			2							
KFK104	Physical culture IV		GED, RC	2	60	0/0/30	30	E				2						
M3 Module of information technology																		
CSE677	Information and communication technology		GED, RC	5	150	30/15/0	105	E				5						
M4 Module of socio-cultural development																		
HUM137	History of Kazakhstan		GED, RC	5	150	15/0/30	105	GE	5									
HUM132	Philosophy		GED, RC	5	150	15/0/30	105	E			5							
HUM120	Module of socio-political knowledge (sociology, political science)		GED, RC	3	90	15/0/15	60	E			3							
HUM134	Module of socio-political knowledge (cultural studies, psychology)		GED, RC	5	150	30/0/15	105	E				5						
M5 Module fundamentals of anti-corruption culture, ecology and life safety																		
MSM500	Fundamentals of scientific research methods	1	GED, CCH	5	150	30/0/15	105	E			5							
MNG489	Fundamentals of economics and entrepreneurship	1	GED, CCH	5	150	30/0/15	105	E			5							
HUM136	Fundamentals of anti-corruption culture and law	1	GED, CCH	5	150	30/0/15	105	E			5							
CHE656	Ecology and life safety	1	GED, CCH	5	150	30/0/15	105	E			5							
MNG564	Basics of Financial Literacy	1	GED, CCH	5	150	30/0/15	105	E			5							
CYCLE OF BASIC DISCIPLINES (BD)																		
M6 Module of physical and mathematical training																		
MAT101	Mathematics I		BD, UC	5	150	15/0/30	105	E	5									
PHY111	Physics I		BD, UC	5	150	15/15/15	105	E	5									
MAT102	Mathematics II		BD, UC	5	150	15/0/30	105	E		5							MAT101	

PHY112	Physics II		BD, UC	5	150	15/15/15	105	E		5								PHY111
M7 General technical training module																		
MSM132	Introduction to engineering design		BD, UC	5	150	15/30/0	105	E	5									
ISO111	Production workshops		BD, UC	5	150	0/0/45	105	E		5								
AAP419	Educational practice		BD, UC	1				R		1								
MSM464	Computer-aided engineering systems		BD, UC	5	150	0/45/0	105	E			5							
GEN412	The theoretical mechanics		BD, UC	5	150	30/0/15	105	E			5							
ELC101	Electrical and Electronic Engineering		BD, UC	5	150	15/15/15	105	E			5							
GEN408	Strength of materials		BD, UC	5	150	15/15/15	105	E				5						
GEN125	Bases of designing and details of cars		BD, UC	5	150	15/15/15	105	E				5						
MSM133	Construction materials and heat treatments		BD, UC	5	150	15/30/0	105	E				5						
MSM102	Basics of interchangeability		BD, UC	5	150	15/15/15	105	E					5					
MSM465	Automated engineering calculation		BD, UC	5	150	15/30/0	105	E					5					
MSM101	Theory of cutting		BD, UC	5	150	15/15/15	105	E					5					
MCH531	Qualimetry in mechanical engineering		BD, UC	5	150	30/0/15	105	E					5					
MSM401	Metalworking machines		BD, UC	5	150	15/0/30	105	E					5					
MSM466	Automation of process design and calculation		BD, UC	5	150	15/0/30	105	E							5			
MSM150	Calculation and design of cutting tools	1	BD, CCH	5	150	15/0/30	105	E							5			
CSE831	Fundamentals of Artificial Intelligence	1	BD, CCH	5	150	15/0/30	105	E							5			
MCH533	Inclusive engineering technologies	1	BD, CCH	5	150	30/0/15	105	E							5			
MSM108	Test and Measurement, Measurements and Statistics	2	BD, CCH	5	150	15/0/30	105	E							5			
MNG562	Legal regulation of intellectual property	2	BD, CCH	5	150	30/0/15	105	E							5			
MNG563	Fundamentals of sustainable development and ESG projects in Kazakhstan	2	BD, CCH	5	150	30/0/15	105	E							5			
MSM149	Hydraulics and hydraulic pneumatic drive	3	BD, CCH	5	150	15/0/30	105	E							5			
GEN119	Mechanics of liquid and gas	3	BD, CCH	5	150	15/15/15	105	E							5			GEN115, MAT127
MSM419	Economics of a machine-building enterprise		BD, UC	5	150	15/0/30	105	E								5		
M8 The module of production and technological training																		
HYD482	Occupational health and industrial safety (by industry)		BD, UC	5	150	30/0/15	105	E									5	
CYCLE OF PROFILE DISCIPLINES (PD)																		
M8 The module of production and technological training																		
AAP420	Industrial practice I		PD, UC	3				R					3					
MSM159	Design and calculation of technological equipment	1	PD, CCH	5	150	15/0/30	105	E						5				
MSM431	Progressive methods of surface treatment	1	PD, CCH	5	150	15/30/0	105	E						5				
AAP421	Industrial practice II		PD, UC	5				R							5			
MSM129	Processes of machine-building production		PD, UC	5	150	30/15/0	105	E							5			
MSM176	Technology of production of machines		PD, UC	5	150	15/0/30	105	E								5		
MSM192	Innovative technologies in mechanical engineering	1	PD, CCH	5	150	15/0/30	105	E								5		
MCH149	CAM(Solidworks, Inventor)	1	PD, CCH	5	150	15/30/0	105	E								5		
MSM457	Organization and planning of machine-building production	2	PD, CCH	6	180	30/0/30	120	E								6		
MSM421	Production design	2	PD, CCH	6	180	30/0/30	120	E								6		
MSM412	Composite materials processing technology	3	PD, CCH	5	150	15/30/0	105	E								5		
TEC146	Technology and equipment of welding production	3	PD, CCH	5	150	30/15/0	105	E								5		PHY112
MSM467	Engineering Product Lifecycle Management		PD, UC	5	150	15/0/30	105	E									5	
MSM429	Automation of technological processes in mechanical engineering	1	PD, CCH	6	180	30/15/15	120	E									6	
MSM430	Robotization of machine-building production	1	PD, CCH	6	180	30/15/15	120	E									6	
MSM426	Design of machining on CNC machines	2	PD, CCH	5	150	15/0/30	105	E									5	

MSM428	Development of control programs	2	PD, CCH	5	150	15/30/0	105	E									5	
M9 «R&D»Management training Module																		
MSM418	Capstone Project	1	PD, CCH	5	150	15/30/0	105	E									5	
MSM417	Project management in mechanical engineering	1	PD, CCH	5	150	15/0/30	105	E									5	
M10 The module of final certification																		
ECA103	Final examination		FA	8													8	
Additional type of training (ATT)																		
AAP500	Military training																	
Total based on UNIVERSITY:										32	28	30	30	30	30	31	29	
										60		60		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	51	0	5	56
BD	Cycle of basic disciplines	0	101	15	116
PD	Cycle of profile disciplines	0	23	37	60
Total for theoretical training:		51	124	57	232
FA	Final attestation				8
TOTAL:					240

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.

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____Acknowledged____

