

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY after K.SATPAYEV



APPROVE
Chairman of the Management Board-
Rector of Kazntu named after K.Satpayev
M.M. Begentaev
«22» 06 2021 г.

WORKING CURRICULUM for 2020-2021 academic year admission
Educational program 6B07106 - "Mechanical Engineering"
Group of Educational programs B064 - "Mechanics and metal working"

Form of study: full-time

Duration of study: 4 years

Academic degree: Bachelor of Engineering and Technology

Year of study	Discipline code	Name of disciplines	semester	Cycle	Credits	Total hours	classroom volume of lect/lab/pr	SRS (including SRSP) in hours	Form of control	Competencies
Language Training module										
Required component										
	LNG 1051	Beginner (A1)	1	O	6	180	0/0/3	135	Э	
	LNG 1052	Elementary English (A1)								
	LNG 1053	General English 1 (A2)								
	LNG 1054	General English 2 (A2)								
	LNG 1055	Academic English (B1)								
	LNG1056	Business English (B2)								
	LNG 1052	Elementary English (A1)	2	O	6	180	0/0/3	135	Э	
	LNG 1053	General English 1 (A2)								
	LNG 1054	General English 2 (A2)								
	LNG 1055	Academic English (B1)								
	LNG1056	Business English (B2)								
	LNG 1057	Professional English (B2+)								
	LNG1012	Kazakh (Russian) language (A2)	1	O	4	120	0/0/2		Э	
	LNG1012.1	Academic Kazakh (Russian) language (B1)								
	LNG1012.2	Business Kazakh (Russian) language (B2)								
	LNG1102.1	Academic Kazakh (Russian) language (B1)	2	O	4	120	0/0/2		Э	
	LNG1102.2	Business Kazakh (Russian) language (B2)								
	LNG1012	Kazakh (Russian) language (A2)								
Module of social disciplines										
Required component										
	KFK101	Physical Culture I		O	2	60	0/0/2	30	E	
	KFK102	Physical Culture II		O	2	60	0/0/2	30	E	
	HUM100	Modern History of Kazakhstan (state exam)		O	5	150	1/0/2	105	E	
	HUM132	Philosophy		O	5	150	1/0/2	105	E	
	CHE452	Ecology sustainable development		O	2	60	1/0/0	45	E	
	CHE451	Life safety		O	2	60	1/0/0	45	E	
	MNG487	Fundamentals of Entrepreneurship, leadership and anti-corruption culture		O	3	90	1/0/1	60	E	
Socio-political knowledge module										
Required component										
	HUM126	Socio-political knowledge	3	O	8	150	4/0/0	90	Э	
Module of physical and mathematical training, computer science and chemistry										
University component										
	MAT00110	Algebra and Introduction to Matanalysis	1	Б	6	180	1/0/2	135	Э	
	MAT101	Mathematics I	2	Б	6	180	1/0/2	180	Э	
	MAT101	Mathematics I								
	MAT102	Mathematics II								
	PHY00110	Introduction to Physics	1	Б	6	180	1/1/1	135	Э	
	PHY413	Physics I: Mechanics. Molecular physics and thermodynamics	2	Б	6	180	1/1/1	135	Э	
	PHY413	Physics I: Mechanics. Molecular physics and thermodynamics				180				
	PHY414	Physics II: Electricity and Magnetism				180				
	MAT124	Linear algebra and analytic geometry	2	Б	6	180	1/0/2	135	Э	
	CBI101	Fundamentals of chemistry	2	Б	6	180	1/0/2	135	Э	
	CHE192	General chemistry				180	2/1/0			
	MAT102	Mathematics II	3	Б	5	150	1/0/2	105	Э	
	MAT103	Mathematics III								
	MAT103	Mathematics III	4	Б	5	150	1/0/2	150	Э	
	MAT190	Ordinary differential equations. MatLab								
	PHY471	Physics II: Electricity and Magnetism	3	Б	5	150	1/1/1	105	Э	
	PHY475	Physics III: Optics. Quantum physics. Atomic physics								
	CSE677	Information and communication technologies	3	O	5	150	2/1/0	105	Э	
Module of basic general technical training										
University component										
	GEN111	Engineering graphics	1	Б	6	180	1/1/1	135	Э	
	GEN409	Statics and kinematics	3	Б	5	150	1/0/2	105	Э	
	ROB529	Introduction to electronic measuring systems	3	Б	5	150	1/1/1	105	Э	
	GEN414	Numerical methods and programming	4	Б	5	150	1/1/1	105	Э	
	GEN198	Dynamics	4	Б	5	150	1/0/2	105	Э	

MAT190	Ordinary differential equations. MatLab	5	Б	5	150	1/0/2	105	Э	
MAT127	Partial differential equations. MatLab								
MAT127	Partial differential equations. MatLab	6				1/0/2		Э	
GEN185	Statistical mechanics		Б	5	150	1/1/1	105		
GEN178	Computational mechanics								
GEN199	Engineering thermodynamics	5	Б	5	150	1/0/2	105	Э	
GEN413	Theory and design of mechanisms and machines	5	Б	5	150	1/1/1	105	Э	
GEN186	Fundamentals of mechatronics	5	Б	5	150	1/1/1	105	Э	
GEN160	The finite element method in engineering	5	Б	5	150	1/0/2*	105	Э	
GEN407	Strength and reliability of machines								
GEN404	Fluid and gas mechanics	6	Б	5	150	1/1/1	105	Э	
GEN405	Solid state mechanics	6	Б	5	150	1/0/2	105	Э	
GEN415	Numerical methods for solving engineering problems	7	Б	5	150	1/1/1	105	Э	
GEN420	Design of mechanical systems	7	Б	5	150	1/1/1	105	Э	
GEN187	Oscillation and vibration of mechanical systems	7	Б	5	150	1/1/1	105	Э	
GEN159	Dynamics of machines and its computer analysis					2/1/0		Э	
GEN189	Dynamic systems management	7	Б	5	150	2/0/1	105		
Professional activity module									
University component									
GEN402	Engineering materials	5	П	5	150	1/1/1	105	Э	
GEN421	Introduction to Robotics	7	П	5	150	1/1/1	105	Э	
GEN410	Strength of materials	4	П	5	150	1/1/1	105	Э	
GEN418	Basics of heat transfer	6	П	5	150	1/0/2	105	Э	
GEN419	Design of machine elements	6	П	5	150	1/1/1	105	Э	
Component of choice									
GEN190	Machine Learning in Engineering	7	П	5	150	1/1/1	105	Э	
GEN188	Computational hydromechanics				150	1/1/1	105	Э	
GEN422	Laboratory course: Fluid Flows	8	П	4	60	0/2/0	30	Э	
GEN423	Laboratory course: Heat Transfer				60	0/2/0	30	Э	
GEN191	Design of thermal and ventilation systems	8	П	5	150	1/2/0	105	Э	
GEN192	Renewable energy systems				150	2/1/0	105	Э	
GEN193	3D printing of machine parts and elements	8	П	5	150	2/1/0	105	Э	
GEN194	Mechanics of biofluids				150	2/1/0	105	Э	
Practice-oriented module									
Required component									
AAP101	Educational practice	2	Б	2					
AAP109	Production practice I	4	П	2					
AAP181	Production practice II	6	П	4					
Module of final certification									
Required component									
ECA003	Preparation and writing of a thesis (project)*	8	FC	6					
ECA103	Defense of the thesis (project)*	8	FC	6					
Module of additional types of training									
Component of choice									
AAP107	Sports club sectional	5-7		0					
AAP500	Military affairs	3-6		0					
Number of credits for the entire period of study									
Cycles of disciplines									
Credits									
		mandatory	elective					Total	
	Cycle of general education disciplines	52	7					59	
	Cycle of basic disciplines	137	2					139	
	Cycle of profile disciplines	44	6					50	
	Total for theoretical training:	233	15					248	
	Final certification	12	0					12	
	total:	245	15					260	

The decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 3 "25" 06 2021 г.

Decision of the Academic Council of the Institute U2u4. Protocol № 12 "07" 06 2021 г.

Vice-Rector for Academic Affairs

B.A.Zhautikov

Director of the Institute of Energy and Mechanical Engineering

K.K. Yelemessov

Head of department "Mechanical Engineering and modelling"

A. Kaltayev

Representative of Specialty council

A.K. Tuleshov