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

SATBAYEV UNIVERSITY

APPROVE
Chairman of the Management Board-
Rector of Kazntu named after K.Satpayev
M.M. Begentaev
«25» 06 2021 г.

WORKING CURRICULUM for 2021-2022 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 lek/lab/pr	SRS (including SRSP) in hours	Form of control	Competencies
		Language Training module								
		Required component								
	LNG108	English language	1	O	5	150	0/0/3	105	E	
	LNG108	English language	2	O	5	150	0/0/3	105	E	
	LNG104	Kazakh (Russian) language	1	O	5	150	0/0/3	105	E	
	LNG104	Kazakh (Russian) language	2	O	5	150	0/0/3	105	E	
		Module of social disciplines								
		Required component								
	KFK101	Physical Culture I	1	O	2	60	0/0/2	30	E	
	KFK102	Physical Culture II	2	O	2	60	0/0/2	30	E	
	KFK103	Physical Culture III	3	O	2	60	0/0/2	30	E	
	KFK104	Physical Culture IV	4	O	2	60	0/0/2	30	E	
	HUM100	Modern History of Kazakhstan (state exam)	1	O	5	150	1/0/2	105	E	
	HUM132	Philosophy	4	O	5	150	1/0/2	105	E	
	CHE452	Ecology sustainable development	3	O	2	60	1/0/0	45	E	
	CHE451	Life safety	4	O	2	60	1/0/0	45	E	
	MNG487	Fundamentals of Entrepreneurship, leadership and anti-corruption culture	4	O	3	90	1/0/1	60	E	
		Socio-political knowledge module								
		Required component								
	HUM129	Cultural studies	2	O	2	60	1/0/0	45	E	
	HUM122	Psychology	4	O	2	60	1/0/0	45	E	
	HUM127	Sociology	3	O	2	60	1/0/0	45	E	
	HUM128	Political Science	1	O	2	60	1/0/0	45	E	
		Module of physical and mathematical training, computer science and chemistry								
		University component								
	MAT101	Mathematics I	1	Б	5	150	1/0/2	105	E	
	PHY111	Physics I	1	Б	5	150	1/1/1	105	E	
	MAT102	Mathematics II	2	Б	5	150	1/0/2	105	E	
	PHY112	Physics II	2	Б	5	150	1/1/1	105	E	
	MAT103	Mathematics III	3	Б	5	150	1/0/2	105	E	
	CHE495	General chemistry	2	Б	5	150	1/1/1	105	E	
	CSE677	Information and communication technologies	3	O	5	150	2/1/0	105	E	
		Module of basic general technical training								
		University component								
	GEN177	Engineering and computer graphics	1	Б	5	150	1/0/2	105	E	
	MAT189	Linear Algebra and Analytic Geometry	2	Б	5	150	1/0/2	105	E	
	MAT190	Ordinary Differentiation Equations MatLab	3	B	5	150	1/0/2	105	E	
	GEN414	Numerical Methods and Programming	3	B	5	150	1/1/1	105	E	
	GEN409	Statistic and Kinematics	3	B	5	150	1/0/2	105	E	
	MAT127	Partial Differentiation Equations. MatLab	4	B	5	150	1/0/2	105	E	
	GEN199	Engineering Thermodynamics	4	B	5	150	1/0/2	105	E	
	GEN198	Dinamics	4	B	5	150	1/0/2	105	E	
	GEN404	Fluid Mechanics	5	B	5	150	1/1/1	105	E	
	GEN413	Theory and Design of Mechanism and Machines	5	B	5	150	1/1/1	105	E	
	GEN415	Numerical Methods for Solving Engineering Problems	5	B	5	150	1/0/2	105	E	
	ROB529	Intro to Electronic Measuring Systems	5	B	5	150	2/1/0	150	E	
	GEN405	Solid Mechanics	6	B	5	150	1/0/2	105	E	
	GEN186	Fundamentals of Mechatronics	6	B	5	150	1/1/1	105	E	
	GEN420	Designing of Mechanical systems	7	B	5	150	1/1/1	105	E	
		Component of choice								
	GEN185	Statistical Mechanics	5	Б	5	150	1/1/1	105	Э	
	GEN407	The Strength and Relibility of Machines				150	1/0/1	105	Э	
		Professional activity module								
		University component								
	GEN410	Strength of Materials	4	S	5	150	1/1/1	105	E	
	GEN402	Engineering Materials	5	S	5	150	1/1/1	105	E	
	GEN418	Heat Transfer	6	S	5	150	1/0/2	105	E	
	GEN419	Machine Element Design	6	S	5	150	1/1/1	105	E	
	GEN421	Intro to Robots	7	S	5	150	1/1/1	105	E	
		Component of choice								
	GEN160	Finite Elements in Engineering	6	П	5	150	1/1/1	105	Э	
	GEN188	Computational Fluid Dynamics				150	1/1/1	105	Э	

	GEN159	Dynamics of Machines and Computer Analysis	7	П	5	150	2/1/0	105	Э	
	GEN189	Control of Dynamic Systems				150	2/0/1	105	Э	
	GEN422	Laboratory: Fluid Flowes	8	П	4	60	0/2/0	30	Э	
	GEN423	Laboratory: Heat Transfer				60	0/2/0	30	Э	
	GEN190	Machine Learning in Engineering	7	П	5	150	1/1/1	105	Э	
	GEN178	Computational Mechanics				150	1/1/1	105	Э	
	GEN191	Design of Heat and Ventilation Systems	7	П	5	150	1/2/0	105	Э	
	GEN192	Renewable Energy Systems				150	2/1/0	105	Э	
	GEN193	3D Printing of Machine Elements	8	П	5	150	2/1/0	150	Э	
	GEN194	Biofluid Mechanics				150	2/1/0	150	Э	
	Practice-oriented module									
	Required component									
	AAP101	Educational practice	2	B	2					
	AAP109	Production practice I	4	S	2					
	AAP158	Production practice II	6	S	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	51	7	58
Cycle of basic disciplines	110	2	112
Cycle of profile disciplines	54	6	60
Total for theoretical training:	215	15	**230**
Final certification	12	0	**12**
total:	**227**	**15**	**242**

The decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 3 **"** 25 **"** 06 **20**21 **г.**

Decision of the Academic Council of the Institute ИЭиМ **. Protocol №** 12 **"** 07 **"** 06 **20**21 **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**