



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



WORKING CURRICULUM for 2020-2021 academic year admission
Educational program 6B07106 - "Mechanical Engineering"
Group of Educational programs 8064 - "Mechanics and metal working"

Full-time study

Study duration : 4 years

Academic degree: bachelor of engineering

Year of study	Code	Name of discipline	Cycle	Total Credits	Total hours	lec/lab/pr	HW (including HWST), in hours	prerequisites	
1	1 semester (fall 2020)								
	LNG 1051	Beginner (A1)	G	6	180	0/0/3	135	Diagnostic test	
	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)							
	LNG1012	Kazakh (Russian) language	G	4	120	0/0/2	Diagnostic test		
	LNG1012.1	Academic Kazakh (Russian) language (B1)							
	LNG1012.2	Business Kazakh language/Advanced Russian language (B2)							
	MAT00110	Algebra and beginning of mathematical analysis	B	6	180	1/0/2	135	Diagnostic test	
	MAT101	Mathematics I							
	PHY00110	Physics	B	6	180	1/1/1	135	Diagnostic test	
	PHY413	Physics I: Mechanics, Molecular physics and thermodynamics							
	HUM113	Contemporary History of Kazakhstan	G	6	180	1/0/2	135	no	
GEN111	Engineering: Graphics								
KFK101	Physical education I	G	4	60	0/0/2	30			
Total:				38	1080				
2	3 semester (fall 2021)								
	MAT102	Mathematics II	B	5	150	1/0/2	105	MAT101	
	MAT103	Mathematics III							
	GEN409	Statistic and Kinematics	B	5	150	1/0/2	105	MAT101, MAT102, PHY111	
	CSE677	Information & Communication Technologies							
	PHY471	Physics II: Electricity and magnetism	B	5	150	1/1/1	105	PHY413	
	PHY475	Physics III: Optics, Quantum physics, Atomic physics							
	R2B329	Intro to Electronic Measuring Systems	B	5	150	1/1/1	105	no	
	HUM126	Social & Political Knowledge							
	Total:				33	900			
	3	4 semester (spring 2022)							
		HUM132	Philosophy	G	5	150	1/0/2	105	no
		MAT103	Mathematics III						
		MAT190	Ordinary Differentiation Equations MatLab	B	5	150	1/0/2	105	MAT103
		GEN410	Strength of Materials						
GEN198		Dynamics	B	5	150	1/0/2	105	PHY111, MAT190, GEN509	
GEN414		Numerical Methods and Programming							
Total:				25					
4		5 semester (fall 2022)							
		CHE452	Ecology and sustainable development	G	2	60	1/0/0	45	
		MAT190	Ordinary Differentiation Equations MatLab						
		MAT127	Partial Differentiation Equations MatLab	B	5	150	1/0/2	105	MAT103
		GEN402	Engineering Materials						
		GEN199	Engineering Thermodynamics	B	5	150	1/0/2	105	PHY111
		GEN413	Theory and Design of Mechanism and Machines						
	GEN186	Fundamentals of Mechatronics	B	5	150	1/1/1	105	GEN409, GEN198	
	3221	ELECTIVE							
	Total:				32	960			
	4	6 semester (spring 2023)							
		MNG487	Fundamentals of Entrepreneurship, Leadership and Anti-corruption culture	G	3	90	1/0/1	60	
		MAT127	Partial Differentiation Equations MatLab						
		3223	ELECTIVE	B	5	150	1/0/2	105	MAT190
		GEN404	Fluid Mechanics						
GEN418		Heat Transfer	S	5	150	1/0/2	105	PHY111	
GEN419		Machine Element Design							
GEN405		Solid Mechanics	B	5	150	1/0/2	105	GEN410	
CHE451		Life safety							
Total:				30					
4		7 semester (fall 2023)							
		GEN421	Intro to Robots	B	5	150	1/1/1	105	GEN410
		GEN415	Numerical Methods for Solving Engineering Problems						
		GEN420	Mechanical Systems Design	B	5	150	1/1/1	105	GEN419
		GEN187	Oscillation and vibration of mechanical systems						
	4307	ELECTIVE	B	5	150	105			
	4309	ELECTIVE							
	Total:				30	900			
	4	8 semester (spring 2024)							
		4308	ELECTIVE	S	4	120	30		
		4310	ELECTIVE						
		4311	ELECTIVE	S	5	150	105		
		ECA003	Preparation and writing of the thesis (project)						
		ECA103	Graduate thesis (project) defense	FA	6	180	12		
		Total:							26

Year of study	Code	Name of discipline	Cycle	Credits	Semester
Mandatory types of training with a P/NP rating					
1	AAP101	Internship	B	2	2
2	AAP109	Industrial Internship I	S	2	4
3	AAP181	Industrial Internship II	S	4	6
Additional types of training					
1	AAP107	Sports club sectional	G	0	5-7
2-3	AAP500	Military training	B	0	3-6

Cycle of disciplines	Total number of credits		
	compulsory	elective	total
Cycle of general disciplines (G)	52	7	59
Cycle of basic disciplines (B)	137	2	139
Cycle of special disciplines (S)	44	6	50
Total of theoretical study:			
Final attestation (FA)	233	15	248
	12	0	12
Total:			
Auditorium volume in theoretical credits	245	15	260

Decision of the Academic Council of KazNRTU named after K. Satbayev, Minutes # 3, dated 25.06.2021.

Decision of the Academic Council of the School of Energy and Mechanical Engineering, Minutes # 13, dated 27.06.2021.

Vice-Rector for Academic Affairs

Director of the Institute of Energy and Mechanical Engineering

Head of department "Mechanical Engineering and modelling"

Representative of Specialty council

B.A.Zhaultikov

N.K. Yelemessov

A. Kaltayev

A.K. Tuleshov