

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



APPROVED  
Director of the Institute of Metallurgy  
and Industrial Engineering  
K.B. Rysbekov



MAJOR ELECTIVE DISCIPLINES for 2021-2022 academic year admission  
6B07115 - Technological machines and equipment

Full-time study Study duration : 4 years Academic degree: bachelor of engineering and technology

Year of study	Code of elective	Code of discipline	Name of discipline	Cycle	Credits	lec/lab/pr/IW S	Prerequisites
<b>2 semester (spring 2022)</b>							
1	1204	TEC456	Introduction to the specialty	B	5	2/0/1	no
		TEC168	Training for adaptation to the mountain production				no
		PED427	Training on adaptation to metallurgical production				no
		PED418	Training on adaptation to oil and gas production				no
<b>Total:</b>					<b>5</b>		
<b>5 semester (fall 2023)</b>							
3	3217	TEC469	Pumps, fans, compressors	B	5	2/0/1	PHY112
		TEC467	Fuels, oils and special liquids			2/0/1	MAT102, PHY112
		PED414	Friction and wear			2/0/1	MAT102, PHY112
		PED175	Auxiliary transport equipment of metallurgical shops			2/0/1	MAT102, PHY112
	3218	PED114	Computer-aided design of technological machines	B	5	1/0/2	PHY111, GEN177
		TEC489	Calculation and design of technological machines and equipmen			1/0/2	PHY111, GEN177
		TEC409	Computer technologies for calculation, modeling and design			1/0/2	PHY111, GEN177
	3301	TEC466	Transportation vehicles	S	5	2/0/1	PHY112
		TEC484	Equipment for ore preparation			2/0/1	PHY112
		TEC485	Drilling machines and complexes			2/0/1	TEC456
		TEC486	Machines and equipment for drilling oil and gas wells on land			2/0/1	PED436
	TEC454	Machines and equipment for drilling oil and gas wells on the shelf	2/0/1	PHY112			
<b>Total:</b>					<b>15</b>		
<b>6 semester (spring 2024)</b>							
3	3221	PED445	Fundamentals of Research and Development	B	5	2/0/1	MAT102
		TEC436	Methods and means of testing technological machines			2/0/1	MAT102
		TEC482	Technique of field experiment			2/0/1	MAT102
		TEC477	Gas-pumping units			2/0/1	PHY112, PED436
	3304	TEC483	Mining machinery and equipment	S	5	2/0/1	TEC466
		TEC455	Melting processing equipmen			2/0/1	TEC112
		TEC479	Oil and gas field machines and mechanisms			2/0/1	TEC131, TEC454
		TEC133	Machines and equipment for oil and gas production at sea			2/0/1	TEC131, TEC454
<b>Total:</b>					<b>10</b>		
<b>7 semester (fall 2024)</b>							
4	4305	MIN415	Technology of excavating mine workings	S	5	2/0/1	TEC112
		TEC127	Hydraulic machines and compressors in the oil and gas industry			2/0/1	PED436
		TEC106	Machines and equipment for gas and oil pipelines			2/0/1	PED436
		TEC110	Equipment 3-5 redistribution			2/0/1	TEC455, PED436
	4306	PED431	Dewatering, fan and pneumatic plants	S	5	2/0/1	PHY112
		PED118	Dust-gas cleaning and recycling water supply of industrial enterprises			2/0/1	PHY112
		PED157	Well overhaul equipment and installations			2/0/1	PED436
		PED454	Engineering and well workover technology			2/0/1	PED436
	4307	TEC152	Control and measuring apparatus	S	5	2/0/1	PHY112
		PED193	Instrumentation and automation of technological machines			2/0/1	PHY112
		TEC452	Robots and manipulators in metallurgical production			2/0/1	TEC463, PHY112
	4308	PED417	Automation and calculation parameters of mining machines and fixed installations	S	5	2/0/1	PHY112
		PED151	Metallurgical machines oiling			2/0/1	PHY112
		PED161	Operation and repair of oil and gas machinery and equipment			2/0/1	TEC180
	4309	TEC114	Lifting installations	S	5	2/0/1	PED436
		PED185	Technical diagnostics of metallurgical equipment			2/0/1	TEC463, PHY112
TEC420		Innovative technologies in the practice of maintenance and repair of technological machines	2/0/1			TEC463, TEC180	
<b>Bcero:</b>					<b>25</b>		
<b>8 semester (spring 2025)</b>							
4	4310	PED421	Construction of mining transport vehicles and fixed installations	S	5	2/0/1	PED114, TEC409
		PED177	Projection of metallurgical machines			2/0/1	PED114, TEC409
		PED155	Calculation and design of oil and gas equipment			2/0/1	TEC463, PED114
		PED170	Calculation and design of drilling equipment			2/0/1	TEC463, PED114
	TEC123	Internship transport	2/0/1	TEC121			
	TEC453	Energy-saving technologies in the metallurgical industry	2/0/1	TEC463, PED114			



PED456	Energy-saving equipment and technologies in the oil and gas industry	2/0/1	TEC478, TEC191
PED457	Industrial safety in the oil and gas industry	2/0/1	TEC419
<b>Total:</b>		<b>10</b>	

Credits numbers of elective disciplines over the entire period of study	
Cycles of disciplines	Credits
Cycle of general disciplines (G)	0
Cycle of basic disciplines (B)	20
Cycle of special disciplines (S)	45
<b>TOTAL:</b>	<b>65</b>

Decision of the Academic Council of KazNRTU named after K. Satbayev. Minutes # 3, dated "25" 06 2021.

Decision of the Educational and Methodological Council of KazNRTU named after K. Satbayev. Minutes # 6, dated "4" 11 2021.

Decision of the Academic Council of the School of Metallurgy and Industrial Engineering. Minutes # 12, dated "07" 06 2021.

Head of department TMT&L



K.K. Yelemessov

Representative of Specialty council



M.A. Kanatbaev