

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



MAJOR ELECTIVE DISCIPLINES for 2021-2022 academic year admission
6B07107 - Operational Service Engineering

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/IWS	Prerequisites
2 semester (spring 2022)							
1	1204	TEC456	Introduction to the specialty	B	5	2/0/1	no
		TEC423	Fundamentals of the specialty in mining production				no
		TEC424	Fundamentals of the specialty in metallurgical production				no
		TEC422	Fundamentals of the specialty in oil and gas production				no
Total:					5		
5 semester (fall 2023)							
2	3216	MIN173	Mining technology	B	5	1/0/2	TEC423, TEC193
		TEC426	Technological processes of metallurgical production			2/0/1	TEC193, TEC424
		TEC425	Technologies for drilling wells, oil and gas production and treatment			2/0/1	TEC193, TEC422
	3217	TEC480	Drives of mining machines and stationary options	B	5	2/0/1	TEC423, TEC193
		PED141	Drives of metallurgical machines			2/0/1	TEC193, TEC424
		TEC476	Internal combustion engines			2/0/1	TEC193, TEC422
		TEC478	Gas turbine plants			2/0/1	TEC164
	3301	TEC429	Mining and transport machines	S	5	2/0/1	TEC423, TEC193
		TEC431	Equipment of processing plants			2/0/1	TEC193, TEC424
		TEC485	Drilling machines and complexes			2/0/1	TEC193, TEC422
	3302	TEC430	Machinery and equipment for drilling oil and gas wells	S	5	2/0/1	TEC193, TEC422
		TEC439	Mining machinery and equipment			2/0/1	TEC423, TEC193
		TEC481	Equipment of metallurgical shops			2/0/1	TEC193, TEC424
		TEC438	Machinery and equipment for oil and gas production and treatment			2/0/1	TEC193, TEC422
Total:					20		
6 semester (spring 2024)							
3	3221	TEC432	Fundamentals of computer-aided design of technological equipment	B	5	1/0/2	PHY112
		TEC433	Fundamentals of designing technological machines and machine graphics			1/0/2	PHY112
		TEC434	Computer technologies in operational and service engineering			1/0/2	PHY112, PED436
Total:					5		
7 semester (fall 2024)							
4	4305	MIN503	Blowing and blasting operations	S	5	2/0/1	PHY112
		TEC440	Equipment of pressure treatment shops			2/0/1	PED436
		TEC106	Machines and equipment for gas and oil pipelines			2/0/1	TEC164
		TEC135	Machines and equipment of pumping and compressor stations			2/0/1	TEC193, TEC422
	4306	TEC441	Operation and maintenance of drainage and pneumatic installations	S	5	2/0/1	PHY112
		TEC442	Operation and maintenance of dust and gas cleaning equipment and recycled water supply			2/0/1	PHY112, PED104
		TEC443	Equipment and technology of well repair and maintenance			2/0/1	TEC164
	4307	TEC444	Control, measuring and diagnostic equipment	S	5	2/0/1	PHY112
		TEC445	Monitoring and non-destructive testing of metallurgical machines			2/0/1	PHY112
		PED455	Technical diagnostics and maintenance of oil and gas machines and equipment			2/0/1	PED413, PHY112
	4308	PED421	Construction of mining transport vehicles and fixed installations	S	5	2/0/1	TEC432
		PED177	Projection of metallurgical machines			2/0/1	TEC432
		PED155	Calculation and design of oil and gas equipment			2/0/1	TEC433
		PED170	Calculation and design of drilling equipment			2/0/1	TEC433
	4309	TEC114	Lifting installations	S	5	2/0/1	TEC164
		TEC446	Robotic complexes in metallurgical production			2/0/1	TEC164
	Total:					25	
8 semester (spring 2025)							
4	4310	TEC447	Technical diagnostics of mining equipment	S	5	2/0/1	PED413, PHY112
		TEC448	Fundamentals of tribotechnics and lubrication of metallurgical machines			2/0/1	PED413, PHY112
		PED458	Organization of repair and maintenance of oil and gas machines and equipment			2/0/1	PED413, PHY112
	4311	TEC449	Organization of repair and maintenance of mining machinery and equipment	S	5	2/0/1	PED413, PHY112
		TEC450	Welding technologies in repair and service production			2/0/1	TEC164
		TEC451	Energy-saving technologies in repair and service production in the oil and gas industry			2/0/1	PED192, TEC190
		PED457	Industrial safety in the oil and gas industry			2/0/1	PED413, PHY112
Total:					10		

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
TOTAL:	65

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 "14.08.2021".

Decision of the Academic Council of the School of Metallurgy and Industrial Engineering. Minutes # 10, dated "17.06.2021".

Head of department TMT&L

Representative of Specialty council

K.K. Yelemessov

M.A. Kanatbaev