



APPROVED

Director of the Institute of Metallurgy and
Industrial Engineering

K.K. Yelmessov

2020

Металлургия және
Энергетиктік
инженерия институты

MAJOR ELECTIVE DISCIPLINES for 2020-2021 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/WS	Prerequisites
2 semester (spring 2021)							
1	1101	LNG1074	Business Kazakh language /Advanced Russian language (B2)	G	6	0/0/3/3	LNG1073
		LNG1075	Kazakh (Russian) language. Rhetoric (C1)				
		LNG1076	Kazakh (Russian) language. Culture of business communication (C1)				
	Total:					6	
3 semester (fall 2021)							
2	2209	TEC169	Drives of mining machines and fixed installations	B	6	2/1/0/3	GEN146
		PED430	Technique of field experiment			2/1/0/3	TEC193
		TEC148	Fuels, oils and special liquids			2/0/1/3	PHY111, GEN146
		PED414	Friction and wear			2/0/1/3	PHY111 GEN146
	Total:					6	
4 semester (spring 2022)							
2	2108	LNG109	IELTS Preparation	G	6	0/0/3/3	LNG 1056
		LNG110	Intercultural Communication				
		LNG117	Technical Writing				
		LNG118	Public speaking				
		LNG119	Productivity skills				
		LNG120	GRE preparation				
	2215	PED114	Computer-aided design of technological machines	B	6	1/2/0/3	PHY111, GEN101
		TEC118	Calculation and design of technological machines and equipment			1/2/0/3	PHY111, GEN101
		TEC403	Computer simulation of machine parts			1/2/0/3	PHY111, GEN101
		TEC409	Computer technologies for calculation, modeling and design			1/2/0/3	PHY111, GEN101
Total:					12		
5 semester (fall 2022)							
3	3217	MIN407	Open-cast mining technology	B	6	2/0/1/3	PHY112
		PED175	Auxiliary transport equipment of metallurgical workshops			2/0/1/3	PHY112
		PED445	Fundamentals of Research and Development			2/0/1/3	MAT102, PHY112
		PED446	Fundamentals of the theory of reliability of machines and mechanisms			2/0/1/3	MAT102, PHY112
		TEC410	Fundamentals of the theory of wear of machinery and equipment			2/0/1/3	MAT102, PHY112
	3218	TEC105	Mining machines and equipment	B	6	2/1/0/3	PHY112
		TEC153	Tool base of metallurgical enterprises			2/0/1/3	PED435
		TEC104	Drilling machines and complexes			2/0/1/3	PHY112, PED436
		TEC131	Machines and equipment for drilling oil and gas wells at sea			2/0/1/3	PHY112, PED436
		TEC404	Technical audit			2/0/1/3	PHY112
		TEC411	Equipment maintenance system			2/0/1/3	PHY112
	3219	TEC121	Transportation machines	B	6	2/1/0/3	PHY112
		PED141	Drives of metallurgical machines			2/0/1/3	PHY112
		TEC155	Technological processes in the oil and gas industry			2/0/1/3	PHY112, PED436
		TEC156	Technology of drilling wells and oil and gas production			2/0/1/3	PHY112, PED436
		TEC405	Technical aesthetics and ergonomics			2/0/1/3	PED436
		TEC412	Material and technical means of repair work			2/0/1/3	PHY112
		MIN414	Development of mineral deposits			2/0/1/3	PHY112
	3301	MIN173	Mining technology	S	6	1/0/2/3	PHY112
		TEC112	Equipment for ore preparation			2/1/0/3	TEC193
PED439		Basics of hydraulics and hydraulic drives of technological machines	2/0/1/3			PED436	
PED190		Internal combustion engines	2/0/1/3			PHY112	
TEC414		Technological process of repair	2/0/1/3			PHY112	
Total:					24		
6 semester (spring 2023)							
3	3220	TEC108	Pumps, fans, compressors	B	6	2/0/1/3	PHY112
		PED118	Dust-gas cleaning and recycling water supply of industrial enterprises			2/0/1/3	TEC112
		PED191	Gas-pumping units			2/0/1/3	PED436
		PED192	Gas turbine plants			2/0/1/3	PED436
		TEC413	Ways to restore and repair parts			2/0/1/3	PED436
	Total:					6	
7 semester (fall 2023)							
4304		TEC177	Drain, fan and pneumatic installations	S	6	2/1/0/3	PHY112
		TEC141	The equipment of metallurgical shops			2/0/1/3	TEC112
		TEC109	Oil and gas field machines and mechanisms			2/0/1/3	PHY112, PED436
		TEC133	Machines and equipment for oil and gas production at sea			2/0/1/3	PHY112, PED436
		MIN416	Burro-blasting works			2/0/1/3	PHY112
4305		MIN415	Technology of mine workings	S	6	2/0/1/3	PHY112
		PED185	Technical diagnostics of metallurgical equipment			2/0/1/3	TEC180
		TEC127	Hydromachines and compressors in the oil and gas industry			2/0/1/3	PED413, PHY112
		TEC106	Machines and equipment for gas and oil pipelines			2/0/1/3	PED191
		TEC415	Technological equipment of the industry for mechanical processing			2/0/1/3	PHY112

4	TEC406	Non-Destructive Testing and Diagnostic Methods	S	6	2/0/1/3	PHY112
	TEC114	Lifting installations			2/1/0/3	PHY112
	TEC161	Dynamics of metallurgical machines			2/1/0/3	TEC112
	PED170	Calculation and design of drilling equipment			2/0/1/3	TEC104
	PED155	Calculation and design of oil and gas equipment			2/0/1/3	TEC118
	TEC416	Technological processes of preparation of materials for repair production			2/0/1/3	PHY112
	TEC407	Reliability Oriented Maintenance			2/0/1/3	PHY112
	PED417	Automation and calculation of parameters of mining machines and fixed installations			2/0/1/3	MAT103, GEN101
	PED151	Reliability of metallurgical machines			2/0/1/3	GEN125
	PED161	Operation and repair of oilfield machines and equipment			2/0/1/3	TEC178, TEC104
	PED458	Organization of repair and maintenance of oil and gas machines and equipment			2/0/1/3	PHY112, GEN146
	TEC408	Equipment Reliability Management System			2/0/1/3	PHY112
	TEC417	Technologies for increasing the durability of equipment			2/0/1/3	PHY112
	Total:					24
8 semester (spring 2024)						
4	TEC152	Control and measuring equipment	S	6	2/0/1/3	PED413
	PED177	Designing of metallurgical machines			2/0/1/3	TEC141
	PED157	Well overhaul equipment and installations			2/0/1/3	PHY112, GEN146
	PED454	Engineering and well workover technology			2/0/1/3	TEC134
	TEC418	Fundamentals of design of repair enterprises in the industry			2/0/1/3	PHY112
	PED421	Construction of mining transport vehicles and fixed installations			2/1/0/3	TEC105
	TEC110	Equipment 3-5 redistribution			2/1/0/3	TEC141
	PED193	Instrumentation and automation of technological machines			2/1/0/3	PED413
	PED455	Technical diagnostics and maintenance of oil and gas machines and equipment			2/0/1/3	GEN146, TEC104
	TEC420	Innovative technologies in the practice of maintenance and repair of technological machines			2/0/1/3	PHY112
	TEC123	Internship transport			2/0/1/3	TEC121
	PED183	Equipment for hydrometallurgical enterprises			2/0/1/3	TEC112
	PED456	Energy-saving equipment and technologies in the oil and gas industry			2/0/1/3	PED192, TEC191
	PED457	Industrial safety in the oil and gas industry			2/0/1/3	TEC130
TEC419	Management in the planning of work on repair and maintenance of machines	2/0/1/3	PHY112			
Total:				18		

Credits numbers of elective disciplines over the entire period of study	
Cycles of disciplines	Credits
Cycle of general disciplines (G)	12
Cycle of basic disciplines (B)	36
Cycle of special disciplines (S)	48
TOTAL:	96

The curriculum of the specialty is approved by the Rector of Sutbaev University, 15.09.2020.

Decision of the Academic Council Satbayev University. Minutes # 3, dated "15" 09. 2020.

Decision of the Educational and Methodological Board of Satbayev University. Minutes # 4, dated "14" 09. 2020.

Decision of the Academic Council of the School of Metallurgy and Industrial Engineering. Minutes # 3, dated "20" 10. 2020.

Head of department TM,T&L

K.K. Yelemessov

Representative of Specialty council

M.A. Kanatbaev