



APPROVED

Chairman of the Board –

Rector of KazNRTU named after K.I. Satbayev

M.M. Begentayev

«28» 06 2024.

MODULAR EDUCATIONAL PROGRAM for admission for the 2021-2022 academic year
6B07107 - "Operational Service Engineering"

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

Code of discipline	Name of disciplines	semester	Cycle	Credits	lec/lab/pr/IWS	Form of control	competencies
Multilingual preparation module							
Required component							
LNG108	English	1	G	5	0/0/3/2	E	GCC1, GCC7, PC1, PC2
LNG104	Kazakh (Russian) language	1	G	5	0/0/3/2	E	GCC1, GCC7, PC1, PC2
LNG108	English	2	G	5	0/0/3/2	E	GCC1, GCC7, PC1, PC2
LNG104	Kazakh (Russian) language	2	G	5	0/0/3/2	E	GCC1, GCC7, PC1, PC2
Social Studies Module							
Required component							
HUM100	Contemporary History of Kazakhstan	1	G	5	1/0/2/2	SE	GCC3, GCC6
HUM132	Philosophy	4	G	5	1/0/2/2	E	GCC 4 , GCC8, OPC4, OPC5, PC1
HUM128	Political science	1	G	2	1/0/0/1	E	GCC3, GCC6, GCC 8
HUM129	Culturology	2	G	2	1/0/0/1	E	GCC 2, GCC8
HUM127	Sociology	3	G	2	1/0/0/1	E	GCC 2, GCC8
HUM122	Psychology	4	G	2	1/0/0/1	E	GCC1, GCC7, PC1, PC2
KFK101	Physical education I	1	G	2	0/0/2	E	GCC1, GCC7, PC1, PC2
KFK102	Physical education II	2	G	2	0/0/2	E	GCC1, GCC7, PC1, PC2
KFK103	Physical education III	3	G	2	0/0/2	E	GCC1, GCC7, PC1, PC2
KFK104	Physical education IV	4	G	2	0/0/2	E	GCC1, GCC7, PC1, PC2
Chemical and ecological module							
Required component							
CHE495	Chemistry	2	B	5	1/1/1/2	E	GCC4, GCC5, GCC7
CHE452	Ecology and sustainable development	3	O	2	1/0/0/1	E	GCC4, GCC5, GCC7
MNG487	Fundamentals of Entrepreneurship, Leadership and Anti-corruption culture	4	O	3	1/0/1/1	E	GCC2, GCC9, GCC12, GCC10
CHE451	Life safety	4	O	2	1/0/0/1	E	GCC4, GCC5, GCC7
Physical and mathematical training and informatics module							
Required component							
PHY111	Physics I	1	B	2	1/1/1/2	E	OPC3, OPC4, PC1, PC2, PC16
MAT101	Mathematics I	1	B	5	1/0/2/2	E	PC2, PC16
PHY112	Physics II	2	B	5	1/1/1/2	E	GCC6, OPC3, OPC4, PC2
MAT102	Mathematics II	2	B	5	1/0/2/2	E	GCC6, PC2, PC16
CSE677	Information and Communication technology	3	G	5	2/1/0/2	E	PC2, PC16
NSE143	Industrial economics	5	B	5	2/0/1/2	E	PC2, PC16
General technical training module							
Required component							
GEN408	Strength of materials	3	B	5	1/1/1/2	E	GCC5-GCC9, PC1, PC2, PC8, PC16
ELC186	Electrical engineering	3	B	5	1/1/1/2	E	PC2, PC5, PC7, PC15, PC16
TEC463	Interchangeability, standardization and technical measurements	3	B	5	2/0/1/2	E	PC7, PC12, PC13, PC16
PED104	The branch Materials and Structural Materials Technology	4	B	5	2/1/0/2	E	PC7, PC12, PC13, PC16
TEC164	Basics of thermodynamics and heat engineering installations	4	B	5	2/0/1/2	E	PC5, PC12, PC3
PED103	Theoretical foundations of mechanical engineering	5	B	5	2/0/1/2	E	PC5, PC12, PC3
PED446	Fundamentals of the theory of reliability of machines and mechanisms	6	B	5	2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
Optional component							
TEC456	Введение в специальность	2	B	5	2/0/1/2	E	GCC5-GCC9, PC1, PC2, PC8, PC16
TEC423	Основы специальности в горном производстве				2/0/1/2	E	PC2, PC5, PC7, PC15, PC16
TEC424	Основы специальности в металлургическом производстве				2/0/1/2	E	PC7, PC12, PC13, PC16
TEC422	Основы специальности в нефтегазовом производстве				2/0/1/2	E	PC7, PC12, PC13, PC16
TEC480	Drives of mining machines and stationary options	5	B	5	2/0/1/2	E	PC5, PC12, PC3
PED141	Drives of metallurgical machines				2/0/1/2	E	PC5, PC12, PC3
TEC476	Internal combustion engines				2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
TEC478	Gas turbine plants				2/0/1/2	E	PC5, PC12, PC3, PC7, PC12
Engineering and Computer Aided Design Module							
Required component							
GEN177	Engineering and Computer Graphics	3	B	5	1/1/1/2	E	PC4, PC7, PC8
GEN125	Bases of designing and details of machines	4	B	5	1/1/1/2	E	PC4, PC7, PC8
Optional component							
TEC432	Fundamentals of computer-aided design of technological equipment	6	B	5	1/0/2/2	E	PC4, PC7, PC8
TEC433	Fundamentals of designing technological machines and machine graphics				1/0/2/2	E	PC4, PC6, PC7, PC8, PC10, PC16
TEC434	Computer technologies in operational and service engineering				1/0/2/2	E	PC4, PC7, PC8
TEC444	Control, measuring and diagnostic equipment				2/0/1/2	E	PC4, PC6, PC7, PC8, PC10, PC16

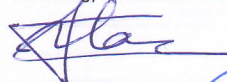
TEC445	Monitoring and non-destructive testing of metallurgical machines	7	S	5	2/0/1/2	E	PC7,PC9,PC10, PC16
PED455	Technical diagnostics and maintenance of oil and gas machines and equipment				2/0/1/2	E	PC6, PC9, PC12, PC13, PC14
PED421	Construction of mining transport vehicles and fixed installations				2/0/1/2	E	PC5, PC12, PC13
PED177	Projection of metallurgical machines				2/0/1/2	E	PC6, PC9, PC12, PC13
PED155	Calculation and design of oil and gas equipment	7	S	5	2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
PED170	Calculation and design of drilling equipment				2/0/1/2	E	PC5, PC12, PC13
Technology and Operations Module							
Required component							
PED121	Installation and assembly production of technological machines	6	S	5	2/0/1/2	E	PC9, PC12, PC13, PC14
TEC185	Technology of repair and operation of technological machines	6	S	5	2/0/1/2	E	PC9, PC12, PC13
TEC470	Hydraulics and hydraulic drive of technological machines	6	S	5	2/0/1/2	E	PC7, PC9, PC10, PC16
Optional component							
MIN173	Mining technology				1/0/2/2	E	PC6, PC9, PC11, PC12
TEC426	Technological processes of metallurgical production	5	S	5	2/0/1/2	E	PC5, PC15
TEC425	Technologies for drilling wells, oil and gas production and treatment				2/0/1/2	E	PC6, PC9, PC11-PC14
TEC441	Operation and maintenance of drainage and pneumatic installations				2/0/1/2	E	PC5, PC12, PC13
TEC442	Operation and maintenance of dust and gas cleaning equipment and recycled water supply	7	S	5	2/0/1/2	E	GCC5, PC1, PC2, PC3, PC4, PC8
TEC443	Equipment and technology of well repair and maintenance				2/0/1/2	E	PC6-PC8, PC12, PC13, PC14
TEC449	Organization of repair and maintenance of mining machinery and equipment				2/0/1/2	E	PC6, PC9, PC11, PC12
TEC450	Welding technologies in repair and service production				2/0/1/2	E	PC7, PC9, PC10, PC16
TEC451	Energy-saving technologies in repair and service production in the oil and gas industry	8	S	5	2/0/1/2	E	PC7, PC9, PC10, PC16
PED457	Industrial safety in the oil and gas industry				2/0/1/2	E	PC6, PC9, PC11, PC12
TEC114	Lifting installations				2/0/1/2	E	PC6, PC9, PC11, PC12
TEC446	Robotic complexes in metallurgical production	7	S	5	2/0/1/2	E	PC6-PC8, PC12, PC13, PC14
Machines and equipment module							
Optional component							
TEC429	Mining and transport machines				2/0/1/2	E	PC4, PC6, PC7, PC8, PC10, PC16
TEC431	Equipment of processing plants	5	S	5	2/0/1/2	E	PC5, PC12, PC13
TEC485	Drilling machines and complexes				2/0/1/2	E	PC6, PC9, PC11, PC12
TEC430	Machinery and equipment for drilling oil and gas wells				2/0/1/2	E	PC6, PC9, PC12, PC13, PC14
TEC439	Mining machinery and equipment				2/0/1/2	E	PC5, PC12, PC13
TEC481	Equipment of metallurgical shops	5	S	5	2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
TEC438	Machinery and equipment for oil and gas production and treatment				2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
MIN503	Blowing and blasting operations				2/0/1/2	E	PC6, PC9, PC11, PC12
TEC440	Equipment of pressure treatment shops	7	S	5	2/0/1/2	E	PC6, PC9, PC12, PC13, PC14
TEC106	Machines and equipment for gas and oil pipelines				2/0/1/2	E	PC5, PC12, PC13
TEC135	Machines and equipment of pumping and compressor stations				2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
TEC447	Technical diagnostics of mining equipment				2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
TEC448	Fundamentals of tribotechnics and lubrication of metallurgical machines	8	S	5	2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
PED458	Organization of repair and maintenance of oil and gas machines and equipment				2/0/1/2	E	PC6, PC11, PC12, PC13, PC14
Practice-oriented module							
Required component							
AAP101	Internship	2	B	2	0/0/2/0		GCC6, GCC8, GCC9
AAP186	Industrial internship I	4	B	5	0/0/5/0		GCC6, GCC8
AAP176	Industrial internship II	6	S	5	0/0/5/0		GCC6, GCC8
Final certification module							
Required component							
ECA003	Preparation and writing of the thesis (project)	8	FA	6			GCC1-GCC9, OPC1-OPC5, PC1-PC16
ECA103	Graduate thesis (project) defense	8	FA	6			
Additional training module							
Optional component							
	Sports club sectional	5-7					GCC 2, GCC8
AAP500	Military training	3-6					

Total number of credits			
Cycle of disciplines	Credits		
	compulsory	elective	total
Cycle of general disciplines (G)	51	7	58
Cycle of basic disciplines (B)	105	7	112
Cycle of special disciplines (S)	55	5	60
Total of theoretical study:			230
Final attestation (FA)	12	0	12
TOTAL:			242

Decision of the Academic Council KazNRTU named after K. I. Satpayev. Minutes # 3, dated 25.06 2021.

Decision of the Academic Council of the Institute of Metallurgy and Industrial Engineering. Minutes # 12, dated 07.06 2021.

Vice-Rector for Academic Affairs



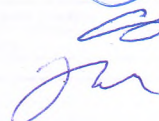
B.A. Zhautikov

Director of the Institute of Metallurgy and Industrial Engineering



K. B. Rysbekov

Head of department TMT&L



K.K. Yelemessov

Representative of Specialty council

M.A. Kanatbaev