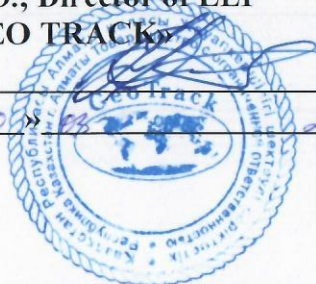


AGREED:  
Ph.D., Director of LLP  
«GEO TRACK»

Nusupov D.K

« 30 »

2023.



I APPROVED

Director of the Institute

«Transport Engineering»

Chigambaev T.O.

« 30 »

03

2023



CATALOG OF CHOICE COMPONENT DISCIPLINES

EDUCATIONAL PROGRAM

«7M07345 – Transport construction»

Level of education: specialized master's degree

Duration of study: 1.5 years

Admission year: 2023

Module	Cycle	Component	Name of the discipline	Total labor intensity		Semester	Learning outcomes	Brief description of the discipline	Prerequisites	Post-requisites	Department
				academic hours	academic credits						
1	2	3	4	5	6	7	8	9	10	11	12
Module 1 -Resource Management	DB	VK	Lean	270	9	2	LO1	Studies the basics of managing an organization based on the principles of lean production: minimizing all types of losses in the process of activity, achieving the maximum possible result in the shortest possible period of time, rational use of all types of resources, improving aspects of the organization's activities, involving employees in technological processes; formation of lean thinking among future managers, correlated with the ideas of the concepts of sustainable development and conscious consumption that are relevant to the modern world.	Ecology and life safety	Operational development methodology	PS
			SMART technologies in transport				LO4	Intelligent technologies used in railway transport are reviewed and studied. The basic concepts of the current state and prospects for the development of railway transport infrastructure based on SMART technologies are described. Familiarization of students with and development of skills in assessing the improvement of operational safety of railway infrastructure facilities, taking into account the	Information no-communications-ion technologies	Design and estimate work in transport construction, Design and estimate documentation of transport structures	

								development of computer technologies, software and artificial intelligence.			PS
Module 2-Design, operation and monitoring of transport infrastructure	PD	VK	Diagnostics and monitoring of transport facilities	270	9	1	LO6	Studies the logical correspondence between the various requirements of regulatory literature when diagnosing transport infrastructure objects (calculation of carrying capacity, load and impact, bearing capacity, deformations and displacements, technical and economic indicators, development of inspection and testing programs, proposals and measures for effective and safe diagnostic methods) in in order to make the most optimal decisions to assess their technical condition.	Digital diagnostics of construction sites	Innovative technologies new in transport construction, Digitalization of transport infrastructure	SI
			Assessment of the technical condition of transport structures				LO6 LO7	It studies the fundamentals of analyzing the technical condition of transport infrastructure facilities based on the results of surveys, the development of methodological materials, proposals and activities on effective and safe methods of inspection and testing of transport infrastructure facilities, fundamental methods and methods of inspection and testing of artificial structures, necessary for the purpose of solving practical problems in assessment of their technical condition	Digital diagnostics of construction sites	Innovative technologies in transport construction, Digitalization of transport infrastructure	SI
	PD	VK	Construction of transport facilities	180	6	1	LO6	Study of modern methods, methods and technical means of mechanization, mechanization and automation for the development of technological processes for complex complexes and individual types of work for the current maintenance and repair of transport infrastructure facilities, taking into account their technical, technological and operational characteristics and the feasibility study of capital investments and operational expenses.	Railway track construction	Design and estimate documentation of transport structures, Design and estimate work in transport construction	SI

Module 2-Design, operation and monitoring of transport infrastructure			Maintenance and repair of transport facilities				LO6 LO7	Study of transport infrastructure objects for public and strategic official use by type of transport depending on various target functional purposes, classifications, types, technical and operational parameters, structural and technical and economic solutions, methods of design and calculation of structures of transport structures under various force influences, taking into account their regional physical-geographical and natural-climatic location.	Construction of transport infrastructure facilities, Maintenance and repair of transport infrastructure facilities	Design and estimate documentation of transport structures, Design and estimate work in transport construction	SI
			Design and estimate work in transport construction				LO8	Studies the functional and operational requirements of transport construction, the requirements of regulatory and legislative acts and documents, design output data, the procedure for developing, forming and making design decisions, assessing the quality of design solutions and the development of design and estimate documentation with the preparation of design and estimate documentation, general information about design - survey work and estimate documentation for transport construction.	Construction of transport infrastructure facilities, Monitoring the technical condition of transport infrastructure facilities	Preparation and defense of a master's project	SI
Module 4-Design and estimate documentation	PD	VK	Design and estimate documentation of transport structures	180	6	2	LO8	Studies the preparation of a set of documents that reveal the essence of the project and contain justification for its feasibility and further implementation, carried out to ensure the reliability and durability of transport structures, using the theoretical foundations of soil compaction of the roadbed and standardization of the degree of compaction, basic provisions on methods and means of ensuring the required degree of compaction transport facilities.	Construction of transport infrastructure facilities, Maintenance and repair of transport infrastructure facilities	Preparation and defense of a master's project	SI
Module 3- IT technologies in transport	PD	VK	Innovative technologies in transport construction	180	6	2	LO3 LO4	Studying the essence, principles and directions of digital activities, information and analytical automated systems of organizations (enterprises) to ensure the quality of transport construction with technical solutions that make the	Construction of transport infrastructure facilities, Monitoring the technical	Preparation and defense of a master's project	SI

							construction process and management of operational activities easier and faster	transport infrastructure facilities		
			Digitalvisat ion of transport infrastructure				LO4 LO6 Formation of theoretical knowledge in the field of digital technologies used in production, as well as familiarization with the main trends in the field of production development caused by the introduction of digital technologies, studying the principles of operation of the main components of digital systems, acquiring theoretical knowledge in the field of development and implementation of a strategy for the digital transformation of production activities.	Construction of transport infrastructure facilities, Monitoring the technical condition of transport infrastructure facilities	Preparation and defense of a master's project	SI
	<b>Total</b>			1080	36					

Head of the Department of Civil Engineering



Ismagulova S.O.