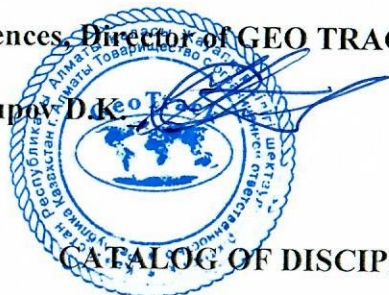


AGREED I

Candidate of Technical Sciences, Director of GEO TRACK LLP

"30" 03 2023 Nusupov D.K.



CATALOG OF DISCIPLINES OF THE COMPONENT BY CHOICE

EDUCATIONAL PROGRAM 7M07346 – TRANSPORT CONSTRUCTION

Education level: Master's degree Period of study: 2 years Admission year: 2023

Cycle	Component	Name of the discipline	Total labor intensity		Term	Learning outcomes	Brief description of the discipline	Prerequisites	Post-requirements	Department
			in academic hours	in academic credits						
1	2	3	4	5	6	7	8	9	10	11
DB	KB	Elasticity and plasticity	270	9	1	PO6	Apply modern analytical and engineering methods for analyzing the stress-strain state of transport industry objects, as well as software packages designed to study the stress-strain state of transport structures for various purposes, analyze stresses and deformations, solve elementary two-dimensional problems in rectangular and polar coordinates and three-dimensional problems of elasticity theory using experimental methods of solutions	Probability theory and mathematical statistics, System Analysis, Research Methods, Finite Element Method in transport construction problems,	Construction of transport facilities. Diagnostics of transport structures, Inspection and testing of artificial structures, Experimental methods for assessing the technical condition of	ce

									artificial structures	
		Mechanics of an elastic deformable solid				PO6	Possession of modern methods and approaches in the study of elastic-plastic deformation based on general laws, on which a unified connected structure of the theory of the continuum model of matter and the basic equations of continuum mechanics is built, allows us to demonstrate solutions to the problem of elastic-plastic deformation of solids and rocks, the problem of deformation of bulk and powder, as well as composite materials	Probability theory and mathematical statistics, System Analysis, Research Methods, Finite Element Method in transport construction problems,	Diagnostics of transport facilities, Comprehensive assessment of the technical condition of transport facilities, Inspection and testing of artificial structures	ce
DB	KB	Strategic management	180	6	2	PO4	Formation of undergraduates' basic theoretical knowledge and basic practical skills in the field of strategic management of enterprises and organizations, strategic analysis of the external and internal environment of the company, the company's competitive strategy and corporate management strategy. Active teaching methods are used – the method of brainstorming, group work	Within the framework of the Bachelor's degree program	Workshop on professional foreign language, Academic writing, Strengthening the infrastructure of transport facilities, Management Psychology, Production management, Risk management	JMT
		Business Research				PO4	Mastering theory by undergraduates, as well as developing practical skills in business research and analytics, life cycle analysis of the development of promising technologies. The scientific and technical aspects of the project are being studied. Active teaching methods used in the discipline - individual task	Within the framework of the Bachelor's degree program	Workshop on professional foreign language, Academic writing, Strengthening	JMT

									the infrastructure of transport facilities, Management Psychology, Production management, Risk management	
PD	KB	Construction of transport facilities	180	6	1	PO8	Analyze the objects of public and strategic service transport facilities by types of transport (railway, automobile, air, sea, inland water, pipeline) depending on various target functional purposes, classifications, types, technical and operational parameters, structural and technical and economic solutions, studying the methods of design and calculation of transport structures under various conditions force impacts, taking into account their regional physical-geographical and natural-climatic location	Methods of scientific research, Finite element method in problems of transport construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Research work, final certification	ce
		Maintenance and repair of transport facilities				PO8	Apply modern methods, methods and technical means of mechanization, mechanization and automation in the development of technological processes for complex complexes and certain types of work on the current maintenance and repair of transport facilities (railway, automobile, air, sea, inland water, pipeline), taking into account their technical, technological and operational characteristics and feasibility study of capital investments and operating costs	Methods of scientific research, Finite element method in problems of transport construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Research work, final certification	ce

PD	KB	Design and estimate business in transport constructio	180	6	2	PO5	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, evaluating the quality of design decisions and the development of design estimates with design estimates, general information about design and survey work and estimates of transport construction	Methods of scientific research, Finite element method in problems of transport construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Construction of transport facilities in special conditions, Maintenance and repair of transport facilities, Strengthening of infrastructure of transport facilities.	ce
		Design and estimate documentation of transport facilitiesий				PO5	Studies the preparation of a set of documents that reveal the essence of the project and contain the rationale for its feasibility and further implementation, carried out to ensure the reliability and durability of transport structures, using the theoretical foundations of compaction of the roadbed and normalization of the degree of compaction, the main provisions on methods and means to ensure the required degree of compaction of transport structures	Methods of scientific research, Finite element method in problems of transport construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Construction of transport facilities, Construction of transport facilities in special conditions, Maintenance and repair of transport facilities, Strengthening of infrastructure of transport facilities.	ec
PD	KB	Innovative technologies in transport construction	180	6	2	PO10	The study of the essence, principles and directions of digital activity of organizations (enterprises). Information policy of the Republic of Kazakhstan. State management of digital development. Legislative regulation in the field of digital technologies in the Republic of Kazakhstan. Information security. Principles of construction of digital measuring devices. Digital technologies used in the transport	Methods of scientific research, Finite element method in problems of transport	Construction of transport facilities, Construction of transport facilities in special conditions,	ce

							industries of the Republic of Kazakhstan, types of information and analytical automated systems for operational activity management	construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Maintenance and repair of transport facilities, Strengthening of infrastructure of transport facilities	
		Digitalization of transport infrastructure				PO10	The purpose of mastering the discipline is the formation of theoretical knowledge in the field of digital technologies used in production, as well as familiarization with the main trends in the development of production due to the introduction of digital technologies, the study of the principles of operation of the main components of digital systems, the acquisition of theoretical knowledge in the development and implementation of digital transformation strategies of production activities	Methods of scientific research, Finite element method in problems of transport construction, Theory of elasticity and plasticity, Mechanics of deformable solids	Construction of transport facilities, Construction of transport facilities in special conditions, Maintenance and repair of transport facilities, Strengthening of infrastructure of transport facilities	ce
PD	KB	Diagnostics and monitoring of transport facilities	270	9	3	PO9	To assess the logical correspondence between the various requirements of regulatory literature in the diagnosis and monitoring of transport facilities (calculation of load capacity, load and impact, bearing capacity, deformations and displacements, technical and economic indicators, development of survey and test programs, proposals and measures for effective and safe diagnostic methods) to make the most optimal decisions on the assessment and their technical condition	Bachelor's degree disciplines	Final certification	ce
		Assessment of the technical condition of				PO9	Apply the skills of assessing the technical condition of transport structures based on the results of surveys, the development of methodological materials, proposals and measures for an effective and safe	Bachelor's degree disciplines	Final certification	ce

		transport facilities					method of assessing the technical condition of transport structures, the fundamental methods and methods of surveys and tests of transport structures necessary to solve practical problems of assessment and their technical condition			
PD	KB	Strengthening of transport infrastructure	180	6	3	PO7	Apply the skills of analyzing the technical compliance of transport infrastructure parameters with industry standards, technical equipment, methods of their operation, changing the category of structures to solve special tasks for the selection of new technical parameters and conditions for the modernization of transport by assigning and justifying the stages of improving technical and economic indicators with continuous operation of facilities and increasing loads	Strategic Management, Business Research, Scientific Research Methods, Finite Element Method in transport construction tasks	Construction of transport facilities, Construction of transport facilities in special conditions, Production management, Risk management	ce
		Comprehensive design solutions for the reconstruction of transport facilities				PO7	To assess the technical condition, equipment of transport facilities (the state of constant parameters, their compliance with design standards, operational indicators) to solve problems of changing parameters, while preparing complex design solutions for the infrastructure as a whole that meet the requirements of increasing the throughput and carrying capacity of optimal terms, volumes of operational and economic measures for the reconstruction of transport facilities	Strategic Management, Business Research, Methods of scientific research, the finite element method in problems of transport construction	Construction of transport facilities, Construction of transport facilities in special conditions, Production management, Risk management	ce
Total			1440	48						

Head of the Department of "Construction Engineering"



Ismagulova S.O.