

AGREED
"GEO TRACK" LLP Director,
Candidate of Technical Sciences
Nussupov D.K.
«20» 03 2025 г.



I APPROVE
Directors of the Institute "TI"
Abdreshov Sh.A.
«19 » 03 2025 г.

CATALOGUE OF ELECTIVE COMPONENT DISCIPLINES

EDUCATIONAL PROGRAM

7M07169 – Transport Infrastructure Engineering (specialized)

Education level: Master's degree

Duration of study: 1 year

Year of admission: 2025 g.

Cycle	Component	Name of the discipline	Total labor intensity		Semester	Learning outcomes	Brief description of the discipline	Prerequisites	Postrequisites
			academic hours	academic credits					
1	2	3	4	5	6	7	8	9	10
BD	KV	Lean manufacturing	120	4	1	EO 1	Students master methods for minimizing losses and increasing production efficiency. They develop management competencies in process analysis, decision-making, and the implementation of lean approaches. They develop the ability to develop productivity improvement projects based on the rational use of resources. They study the principles of lean thinking, which focuses on sustainable development, automation, and improvement at all levels of production and management activities.	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies
		Smart technologies in transport				EO 1	This course explores intelligent technologies for digital monitoring, automation, and management of transport infrastructure facilities using modern IT solutions. It develops competencies in the application of the Internet of Things, predictive analytics, artificial intelligence systems, and digital twins to improve operational safety, reliability, and efficiency. Students master methods for building smart	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies

							systems, digital modeling, data analysis, and forecasting to ensure sustainable transport development.		
PD	KV	Construction of transport infrastructure facilities	150	5	1	EO 2	The study of modern methods, techniques and technical means of mechanization, mechanisation and automation for the development of technological processes for complex systems and individual types of work on 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 operating costs.	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies
		Maintenance and repair of transport infrastructure facilities				EO 2	Study of public and strategic service transport infrastructure facilities by type of transport depending on various target functional purposes, classifications, types, technical and operational parameters, design and technical and economic solutions, design methods and calculations of transport structures under various force impacts, taking into account their regional physical-geographical and natural-climatic location.	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies
PD	KV	Diagnostics of transport infrastructure facilities	150	5	1	EO 5	Studies the logical correspondence between various requirements of regulatory literature in the diagnostics of transport infrastructure facilities (calculation of load-bearing capacity, load and impact, bearing capacity, deformations and displacements, technical and economic indicators, development of survey and testing programs, proposals and measures for effective and safe diagnostic methods) in order to make the most optimal decisions on assessing their technical condition.	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies
		Monitoring the technical condition of transport infrastructure facilities				EO 5	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 for effective and safe methods of surveying and testing transport infrastructure facilities, fundamental methods and techniques for surveying and testing artificial structures necessary for solving practical problems in assessing their technical condition	Basic and specialized disciplines of the bachelor's degree	Basic and core disciplines of doctoral studies

Head of the department "transport engineering" _____ Bykhozhaeva G. S.