Joint-Stock Company "Academy of Logistics and Transport"

# EDUCATIONAL PROGRAM

# Name: 7M07160-TRANSPORT FACILITIES

Level of training: Master's degree profile

Code and classification of training areas: Transport facilities

Code and group of educational programs: 7M071-engineering and engineering

Date of registration in the Registry:\_\_\_\_\_

Registration number:\_\_\_\_\_

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### 1. Information about the review, approval and approval of the program, developers and experts

УТВЕРЖДЕНО решением Ученого совета от «28» января 2021 г. №2 ВВЕДЕНО впервые

### 2. REGULATORY REFERENCES

The educational program is developed on the basis of the following normative legal acts and professional standards:

1. The Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III (with amendments and additions as of January 08, 2021).

2. The National Qualifications Framework approved by the protocol of March 16, 2016 by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations.

3. The sectoral framework of qualifications in the field of "Education", approved by the Minutes of the meeting of the sectoral commission of the Ministry of Education and Science of the Republic of Kazakhstan on social partnership and regulation of social and labor relations in the field of education and science dated November 27, 2019 No. 3.

4. The state mandatory standard of postgraduate education (Annex 8 to the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604 with amendments and additions as of May 05, 2020).

5. Qualification directory of positions of managers, specialists and other employees, approved by Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan No. 553 dated December 30, 2020.

6. Professional standard "Teacher", approved by Order of the Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan" Atameken " No. 133 dated June 8, 2017.

7. Professional standard "Science", the project of the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken".

8. Rules for the organization of the educational process on credit technology of training, approved by the Order of the Minister of the Ministry of Education and Science of the Republic of Kazakhstan No. 152 dated 20.04.2011.

9. Classifier of areas of training of personnel with higher and postgraduate education, approved by Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 13, 2018 No. 569 (with amendments and additions as of June 05, 2020).

10. The algorithm of inclusion and exclusion of educational programs in the Register of educational programs of higher and postgraduate Education, approved by the Order of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 No. 665 (with additions and changes as of December 22, 2020).

11. RI-ALT-33 "Regulations on the procedure for developing an educational program of higher and postgraduate education".

12. Professional standard: "Architectural and urban planning works", approved by No. 256 of 20.12.2019.

13. Professional standard: "Development of construction projects", approved No. 256 of 20.12.2019.

14. Professional standard: "Construction of roads and highways", approved No. 256 of 20.12.2019.

# **3. PASSPORT OF THE EDUCATIONAL PROGRAM**

N⁰	Field name	Description									
1	Registration number										
2	Code and classification of the field of	7M07-Engineering, processing and construction									
	education	industries									
3	Code and classification of training areas	7M071 Engineering and Engineering									
4	Code and group of educational programs	Transport facilities									
5	Name of the educational program	7M07160 - Transport facilities									
6	Type of EP	new									

7	EP goal	Preparation of highly qualified, competitive and in- demand masters of the profile direction with organizational, managerial, analytical competencies in the field of research, design, construction, technical diagnostics, repair and maintenance of highways, bridges and transport structures.
8	ISCED level	7
9	The level of the NRC	7
10	Level by ORC	7
11	Distinctive features of the EP	no
	Partner University (SOP) Partner	-
	University (DDOP)	-
12	Form of training	Full-time
13	Registration number	Kazakh, Russian
14	Code and classification of the field of	90
	education	
15	Code and classification of training areas	Master of Engineering and Technology in the educational PROGRAM7M07160 Transport facilities
16	Code and group of educational programs	educational TROORTANT/100/100/11ainsport facilities
10	Name of the educational program	
	Type of EP	
17		
	EP goal	

# 4. THE GRADUATE'S COMPETENCE MODEL

**The purpose of the educational program**: Training of competitive, in-demand personnel of the profile direction with organizational and managerial, research and professional competencies in accordance with International and professional standards.

### **Objectives of the educational program:**

1. Assistance in the formation of graduate abilities:

1) demonstrate the developing knowledge and understanding gained at the higher education level, which are the basis or opportunity for the original development or application of ideas, often in the context of scientific research;

2) apply knowledge, understanding and the ability to solve problems in new or unfamiliar situations in the contexts and within the broader (or interdisciplinary) areas related to the field under study;

3) integrate knowledge, cope with difficulties and make judgments based on incomplete or limited information, taking into account the ethical and social responsibility for the application of these judgments and knowledge;

4) clearly and clearly communicate their conclusions and knowledge and their justification to specialists and non-specialists;

2. Assistance in the formation of a graduate's readiness:

1) develop design documentation for the creation and modernization of transport construction;

2) perform design and design work on the modernization of existing transport construction facilities;

3) develop technical documentation and methodological materials, proposals and measures for the creation and modernization of transport construction facilities.

4) to carry out a technical and economic analysis, a comprehensive justification of the decisions taken and implemented in the field of operation, repair and maintenance of transport construction facilities, their aggregates, systems and elements;

5) apply the results in practice, strive for self-development, improve their skills and skills.

6) to the economical and safe use of natural resources, energy and materials during the operation, repair, maintenance of transport facilities and structures.

### Learning outcomes:

ER-1 Apply the skills of personnel management, production, management psychology, strategic management and information support for business research.

ER-2 Interpret the results of scientific research in the form of reports, abstracts, publications and public discussions, including in a foreign language.

ER-3 Formulate methods for solving scientific and technical problems with any variables, constant objects of research, with complex systems using mathematical models, probability theory and mathematical statistics.

ER-4 To analyze the technical condition and technical and economic indicators of artificial structures on roads using experimental methods, modern software and hardware complexes and systems.

ER-5 Determine the quality of design solutions according to the requirements of regulatory documents, risk analysis and reduction, digital technologies and information security.

ER 6Use methods for calculating the water-thermal mode of operation of the soils of the roadbed of transport structures under operating conditions.

ER-7 To develop comprehensive solutions for strengthening the transport infrastructure and rational methods of reconstruction for the operated facilities.

ER 8 Summarize the application of digital technologies, the principles of building digital measuring devices for transport structures.

ER-9 To make an economic assessment of the structures used for conducting a multi-factor financial and commercial analysis of the investment project of transport structures.

ER-10 To evaluate the technical condition and technical and economic indicators of transport structures using experimental methods, modern software and hardware complexes and systems.

ER- 11 to investigate modern technologies and equipment for the transportation of hydrocarbon raw materials, oil and gas mixtures.

ER-12 to attach modern standards to the calculations of pipeline systems.

**Field of professional activity:** fields of science and technology related to road transport, highways, transport structures and engineering of transport infrastructure.

### **Objects of professional activity:**

- Local executive authorities in the field of road transport, transport facilities and their regional structures;

- Organizations and enterprises of the transport industry in the field of management, operation, maintenance of automobile roads, urban rail transport and subways, as well as industrial transport;

- Organizations and enterprises of the transport industry in the field of technologies of materialprocessing production during maintenance, urban rail transport, subways and industrial transport;

- Research organizations.

### Types of professional activity:

- production and technological;
- organizational and managerial;
- experimental and research;
- settlement and design;

### **Functions of professional activity:**

1) participation in the development of projects of technical conditions and requirements, standards and technical descriptions, regulatory documentation for new objects of professional activity; formation of project goals( programs), problem solving, criteria and indicators for achieving goals, building a structure of their relationships, identifying priorities for solving problems taking into account the moral aspects of activity;

2) participation in the design of new and reconstruction (modernization) of existing transport facilities, in the development of technological processes for maintenance and repair of highways;

3) the use of information technologies in the calculation of transport structures, the design of new and reconstruction (modernization) of existing transport structures, the development of technological processes for maintenance and repair of highways;

4) economic and organizational-planned calculations for the reorganization of production;

5) development of theoretical models that allow predicting changes in the technical condition of highways and the dynamics of the parameters of the efficiency of their technical operation; analysis of the state and dynamics of quality indicators of objects of professional activity using the necessary research methods and tools; development of plans, programs and methods for conducting research of objects of professional activity; conducting scientific research on individual sections (stages, tasks) of the topic as a responsible performer or together with a scientific supervisor;

6) analysis, synthesis and optimization of quality assurance processes for testing, certification of products and services using problem-oriented methods; information search and analysis of information on research objects; implementation of metrological verification of basic measuring instruments; implementation of experimental design developments; justification and application of new information technologies; participation in the preparation of practical recommendations for the use of research and development results;

7) organization of the work of the team of performers, selection, justification, adoption and implementation of management decisions in the conditions of different opinions, determination of the order of work; organization and preparation of initial data for the selection and justification of scientific, technical and organizational decisions based on economic analysis;

8) organization of the process of teaching and upbringing in the field of education using technologies that reflect the specifics of the subject area and correspond to the age and psychophysical characteristics of students, including their special educational needs;

9) design of educational programs and individual educational routes of undergraduates; design of the content of academic disciplines( modules), forms and methods of control and control and measuring materials; design of educational environments that ensure the quality of the educational process; design of further educational route and professional career.

### List of specialist positions:

Teacher of the educational organization, leading researcher, senior researcher, researcher, junior researcher, head of the research laboratory, head of the laboratory, researcher, first head of the production organization( enterprise), deputy head of the production organization( enterprise), head of the structural unit of the production organization( enterprise), deputy head of the production organization (enterprise), manager, engineering and technical employee.

Professional certificates obtained at the end of training: not provided.

**Requirements for the previous level of education**: higher education (bachelor's degree) in the field of training **7M071-ENGINEERING AND ENGINEERING** 

The educational program of the profile master's degree includes the type of practice:

- research practice-at the place of completion of the dissertation

# **Industrial practice.**

Industrial practice is a type of activity aimed at deepening and systematizing the theoretical and methodological training of a master's student, practical mastery of the technology of scientific activity,

acquisition and improvement of practical skills for performing scientific and experimental work and introduction into production, according to all requirements for the level of training of a master of the profile direction.

The practical training of students is conducted in order to get acquainted with the latest theoretical, methodological and technological achievements of domestic and foreign science, with modern methods of scientific research, processing and interpretation of experimental data. The content of the production practice is determined by the topic for collecting materials for further dissertation research.

The practical training of a master's student is carried out at the place of study or in scientific organizations that can be considered as experimental platforms for conducting research related to the topic of a master's thesis. During the practical training, undergraduates are given the opportunity to conduct experimental research according to a pre-developed program that takes into account the tasks of the master's thesis.

### Research work of a master's student (NIRM).

Planning of R & D in weeks is determined based on the standard time of the master's student's work during the week. The number of credits allocated for the implementation of R & D in a specific academic period is determined by the working curriculum of the professional educational program in the direction of personnel training **7M071-Engineering and Engineering**.

The NIRM must:

1) correspond to the main problems of the master's degree educational program, on which the master's thesis is being defended;

2) be relevant and contain scientific novelty and practical significance;

3) be based on modern theoretical, methodological and technological achievements of science and practice;

4) be based on modern methods of data processing and interpretation using computer technologies;

5) be carried out using modern methods of scientific research;

6) contain research (methodological, practical) sections on the main protected provisions.

The implementation of the master's thesis is carried out during the period of research and development. Within the framework of R & D, the individual work plan of a master's student for familiarization with innovative technologies and new types of production provides for the mandatory passage of a scientific internship in scientific organizations and (or) organizations of relevant industries or spheres of activity.

The purpose of the research work is to prepare a master's student who knows the methodology of scientific knowledge of processes and is able to apply scientific methods in the study of problems of modern production, the final result of whose research activity is the writing and successful defense of a master's thesis.

Tasks of research work:

- to prepare highly qualified specialists of modern formation with broad fundamental knowledge;

- to develop the abilities and abilities of undergraduates to critically analyze and master theoretical concepts in order to implement them in a practical plane and with subsequent testing at the international level;

- to form undergraduates ' abilities for professional growth and self-development, skills of independent creative mastering of new knowledge throughout their active life.

As a result of mastering the master's program, graduates should be prepared to perform the following types and tasks of professional research work:

- demonstrate a systematic understanding of the field of study, mastery of the skills and research methods used in this field;

- plan, develop, implement and adjust the complex process of scientific research;

- to contribute with their own original research to the expansion of the boundaries of the scientific field, which may deserve publication at the national or international level;

- critically analyze, evaluate and synthesize new and complex ideas;

- communicate their knowledge and achievements to colleagues, the scientific community and the general public;

- to promote the development of a knowledge-based society.

# The scientific internship is conducted in order to:

- performing the tasks of the master's thesis;

- familiarization with innovative technologies and new types of production;

- familiarization with the latest theoretical, methodological and technological achievements of domestic and foreign science;

- familiarization with modern methods of scientific research, processing and interpretation of experimental data;

- consolidation of theoretical knowledge gained in the course of training, acquisition of practical skills, competencies and professional experience, as well as the development of best practices in this field.

# **Requirements for R & D:**

1) compliance with the main problems of the master's degree educational program, on which the master's thesis is being defended;

2) it is relevant and contains scientific novelty and practical significance;

3) it is based on modern theoretical, methodological and technological achievements of science and practice;

4) it is based on modern methods of data processing and interpretation using computer technologies;

5) it is performed using modern methods of scientific research;

6) contains research (methodological, practical) sections on the main protected provisions.

The Academy defines special requirements for the preparation of a master's student in the research part of the program. Special requirements include:

- knowledge in the field of scientific and managerial activities in the conditions of constant updating of knowledge and modernization of society;

- conducting independent research activities on problems and disciplines;

- the ability of practical processing and transmission of information using modern technical means;

- ability to predict the directions of technical and scientific development of the country;

- possession of modern specialized skills and methods necessary for making effective decisions in the field of engineering and technology.

The main content of the NIRM is reflected in the individual work plan of the master student.

### The content of the NIRM.

The research work of a master's student can be carried out in the following forms:

- performing the tasks of the supervisor in accordance with the approved plan of research work;

- participation in the research work of the department;

- participation in scientific and scientific-methodological seminars held by the Academy, the Department;

- the use of modern methods of data processing and interpretation using computer technologies;

- participation in the development of project documents and other provisions related to the subject area of scientific research;

- participation in scientific research, including joint scientific projects and programs;

- preparation and defense of a master's thesis.

The form of conducting research work of a master's student can be specified and supplemented depending on the specifics of the master's program, the topics of the master's thesis.

The research work of a master's student includes:

- research work;

- scientific internship;

- scientific publications(participation in scientific conferences and seminars);

- writing a master's thesis.

# Organization of a scientific internship within the framework of R & D.

The scientific internship is one of the most important components in the preparation of masters and is implemented in accordance with the IPRM in terms determined by the academic calendar and the individual work plan of the master student.

The terms of the scientific internship are determined by the Academy independently. The scientific internship is usually planned for the second year of master's degree.

The scientific internship of a master's student is carried out on the basis of contracts concluded with enterprises/organizations/institutions, universities and scientific organizations and leading scientists within the framework of Agreements and Memoranda on cooperation in the field of education and science, as well as on the basis of personal invitations from educational and scientific organizations.

The completion of training under exchange programs, including double degree programs, joint educational programs with foreign universities and organizations is equivalent to passing a scientific internship.

In case of non-completion of a scientific internship, a master's student is not allowed to complete the final certification.

The final certification of a master's student is carried out in the form of writing and defending a master's thesis.

The purpose of the final certification of a master's student is to assess the scientific-theoretical and research-analytical level of a master's student, the formed professional and managerial competencies, readiness for independent performance of professional tasks and compliance of his training with the requirements of the master's educational program.

Students who have completed the educational process in accordance with the requirements of the educational program, working curriculum and working curricula, as well as who have passed the preliminary defense (extended meeting) according to the results of the dissertation research are allowed to the final certification.

# 4. MATRIX OF CORRELATION OF LEARNING OUTCOMES ACCORDING TO THE EDUCATIONAL PROGRAM WITH ACADEMIC DISCIPLINES/MODULES

	Matrix of	correl	ation (	of learni	ng outc	omes ac	cording	to the e	ducatior	nal			
			prog	gram wi	th acad	emic dis	sciplines						
N⁰	Name of the discipline	Number of credits	ER1	ER2	ER3	ER4	ER5	ER6	ER7	ER8	ER9	ER10	ER11
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	History and Philosophy	3	+										
2	Foreign language (professional)	4		+									
3	Pedagogy of higher education	5											+
4	Management Psychology	2	+										
5	Teaching practice	4											+
6	Probability theory and mathematical statistics	4			+								
7	Management	2			+								
8	System analysis	4			+								
9	Strategic management	3	+										
10	Business research	3	+										
11	Workshop on professional foreign language	2		+									
12	Academic writing	2	+										
13	Elasticity and plasticity							+					
14	Mechanics of an elastic deformable solid							+					
15	Methods of scientific research	4				+							

16	Theoretical aspects of the water-thermal regime of the soils of the roadbed	6						+					
17	Linear structures	5						+					
18	Strengthening the infrastructure of transport facilities	6							+				
19	Comprehensive design solutions for the reconstruction of transport facilities	6							+				
20	Design and estimate documentation for the construction of linear structures	6								+			
21	Feasibility study of the Imtechnology of linear structures	6								+			
22	Monitoring of transport facilities	б										+	
23	Assessment of the operational condition of linear structures	6										+	
24	Modern technologies and equipment for the transportation of hydrocarbon raw materials	5										+	
25	Technology of transportation of oil and gas mixtures	5										+	
26	Regulatory requirements for the calculations of pipeline systems	4					+						+
27	Technical standards for the design of pipeline systems	4					+						+
28	Experimental research work	18		+	+	+							
30	Final certification of the Master's degree program (OSMP)	12	+	+	+	+	+	+	+	+	+	+	+

# 4. THE STRUCTURE OF THE MASTER'S DEGREE PROGRAM IN THE PROFILE

# **DIRECTION (1.5 YEARS)**

Мо п/п	The name of the cycles of disciplines and	Total labo	or intensity
JN≌ 11/11	types of activities	in academic hours	in academic credits
1	2	3	4
1.	Theoretical training	1800	60
1.1	Cycle of basic disciplines (DB)	450	15
1)	University component (VC):	180	6
	Management	60	2
	Foreign language (professional) Management	60	2
	psychology	60	2
2)	Elective component (KV)	270	9
1.2	Cycle of profile disciplines (PD)	1350	45
1)	University component	450	15
2)	Component of choice	810	27
3)	Production practice	90	3
2.	Experimental research work of a master's student (EIRM)	720	18
1)	Experimental research work of a master's student, including the passage of an internship and the implementation of a master's project	720	18
3	Additional types of training (DVO)	-	_
4	Final certification (IA)	360	12
1)	Registration and defense of a master's thesis (project)	360	12
	Total	2700	90

# 6. THE CURRICULUM FOR THE ENTIRE PERIOD OF STUDY

	а обучения: очная		УЧЕ	БНЫ	и пли	чΗ	. i parti	onop	1/3	CH AN	маты д Алм	YIBE	PARAEH	УЧЕБНЫЙ ПЛАН Направление подготовки: 7М071 - Инженерия и инженерное дело													
Срок	обучения: 1.5 года	<u>Напр</u> 7М07 Г <u>рупп</u> М10- <u>Обра</u> 7М07	авлени 1 – Ина 1а обра 1 – Тран 30вател 160– Тр	е поди кенери зовате испорп пьная ранспој	потовн я и ин эльны л, тра прогр ртны	<u>ж</u> : женер х прог нспор амма: е соор	ное де <u>рамм</u> : тная отная	ело техни ія	Loson Bruka Kasakon	«Лоп колік а Акаден в Снібні	иня ло нанспо 1 01074	Pener Notice International Int	28 англар 2021г. Протоко пропокото ученого совет С.Н.Амирг														
Приел	«: 2021 год	Cten	<u>нь</u> : Об тру	маги іщая цоем-	стр п Фо конт	рма роля,		<i>эхноло</i> Объем	учеб	ной на	грузк	a,	Pacn	ределен еместра	ние по ім												
		Наименование циклов и	ко	КТЬ	CON	естр		ко Аv	нтакти	ные ча	сы	PO	1 к	урс 2 сем.	2 курс 3 сем.												
N2	код дисциплины	дисциплин	з академичесн часах	з академичесн кредитах	Экзамен	(н) кп	Всего часов	лекции	практичес-	таборатор- ные	сроп	СРО	15 недель	15 недель	15 недель												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1											
1.	ЦИКЛ БАЗОВЫХ ДИ	сциплин (бд):			1880	13.86	13/367	1200		14.88	1283	2328	C. La h	12448	1 50 68	ļ											
1.1.	Вузовский компоне	нт:  Менеджмент	60	2	1	-	60	16		10.000	15	30	2	1201081	13976	ł											
112	19+0-M+VK+(Ya/P)	Иностранный язык	00	2			60	15	15		15	30	2			t											
1.1.2	10.0.M.VK.PU	(профессиональный)	00	-	0	-	00	0	7		10	20	4	2		+											
1,1.3.	Итого:	полистия управления	180	6	3	1000	180	23	22	0	45	90	4	2	0	ť											
1.2.	Компонент по выбо	ру:	100								10			Sector Sector		f											
1.2.1.	19-0-M-KV-TVMS	Теория вероятностей и математическая статистика	120	4	1		120	30	15		22	53	4		-	ſ											
	19-0-M-KV-SM	Стратегический менелжмент		1.000			-	-		-	10.00	10000				f											
1.2.2.	19.0.M.KV.B.I	Бизиес-исспедования	90	3	1		90	15	15		22	38	3			ŀ											
1.2.3.	19-0-M-KV-PPIYa	Практикум по профессиональному иностранному языку Акалемическое письмо	60	2	2		60		15		15	30		2		ŀ											
	10-0-0-10-10-0-0	Prese and a second second second		-	-	-				-						ł											
	NTOPO:		270	9	3	0	270	45	45	0	59	121	7	2	0	t											
2	ВСЕГО ПО ЦИКЛУ БД		450	15	6	0	450	68	67	0	104	211	11	4	0	ł											
2.1.	Вузовский компоне	нт:	105250	1.2000	100203	1.52.50	11.20103	10000		11211999	Lacrence .	1953280	States a Story	CONTRACTOR OF		t											
2.1.1.	21-59/80-M -VK-MNI	Методы научных исследований	120	4	1		120	30	15		22	53	4			Ī											
2.1.2.	21-59/80-MVK- TAVTRGJPAD	Теоретические аспекты водно- теплового режима грунтов земляного полотна автомобильных дорог	180	6	1		180	45	30		30	75	6														
212	21 SOISO M AVK I S	Пицейцые сполижение	150		2		150	20	20		20	60		6		t											
2.1.4	19-0-M-VK-Is-Pr	Пооизводственная плактика	90	2	-	-	100	50		-	50			5	3	ł											
41.1.1	Итого:	1	540	18	3		450	105	75	0	82	188	10	5	3	ť											
2.2.	Компонент по выбо	py:														ſ											
2.2.1	21-59/60-M -KV-UITS	Усиление инфраструктуры транспортных сооружений Комплексные проектные решения пр	1 180	6	1		180	45	30		30	75	6			-											
	21-59/60-M -KV-KPRRTS	реконструкции транспортных сооружений Посектио-сметие: сочиности	-						_	-	_					+											
2 2.2.	21-59/60-M -KV-	возведении линейных сооружений Технико-экономическое обоснование ВМ технико-экономическое обоснование	180	6	2		180	45	30		30	75		6													
	TEOBTLS	сооружений Мониторинг транспортных	-	-								-				ł											
2.2.3.	21-59/60-MKV-MTS.	сооружений	180	6	2		180	45	30		30	75		6													
	21-59/60-M -KV-OESLS	пинейных сооружений		_												1											
2.2.4.	21-59/80-MKV-STOTUS	современные технологии и оборудования для транспортировки углеводородного сырья	150	5	2		150	30	30		30	60		5													
	21-59/60-MKV-TTNS	Технология транспортировки нефтегазовых смесей	-								_																
2.2.5.	21-59/60-M -KV-NTRTS	Нормативные требования к расчетам трубопроводных систем Технические нормативы при	120	4	2		120	15	30		22	53		4													
	24 FORD M. VALTHORTS	поректировании трубороровольних	1				1																				

			810	27	5	-	810	180	150	0	142	338	6	21	0	1120
	Итого:		4250	45	8	0	1260	285	225	0	224	526	16	26	3	
	ВСЕГО по циклу П	Д:	1300	40		Contractor of		100	N. Property	Sect.	Products		07	20	2	
	ИТОГО ПО ТЕОРЕ	ТИЧЕСКОМУ КУРСУ ОБУЧЕНИЯ	1800	60	14	0	1710	353	292	0	328	737	21	30	3	CONTRACT.
3	19-0-M-VK-EIRM	ЭКСПЕРИМЕНТАЛЬНО- ИССЛЕДОВАТЕЛЬСКАЯ РАБОТА	540	18									3		15	T
4	19-0-M-VK-IA	ИТОГОВАЯ АТТЕСТАЦИЯ: Оформление и защита	360	12											12	T
-		магистерского проекта	2700	90		1.13	1710	353	292	0	328	737	30	30	30	1.1.1
	ИТОГО ЗА ВЕСЬТ	ТЕРИОД ОВУЧЕНИИ.	2.00	1	1220.2	122314	1 324	19185	1. 19 3.	100	(2252)				1234 200	
	дополнительные виды обучения (дво):		1.222		1205-23		2000		-		-					

СОГЛАСОВАНО: Проректор по УМР Иванов А.А.

РАЗРАБОТАНО: Декан факультета "Транспортная техника и строительсте

ю"

\_Дюсенгалиева Т.М.

И.о.заведующая кафедрой "Транспортное строительство

# 8. DIRECTORY OF THE DISCIPLINE OF THE UNIVERSITY COMPONENT

EDUCATIONAL PROGRAM

7M07160-Transport facilities

Training period: 1.5 years Training period: 1.5 years

Level of education: Master's degree profile

Module	Cycle	Compo nent	Discipline name	Total lal intensity in academi c hours	bor / in aca c c	ademi eredits	Sem ester	Lea rnin g outc ome s	Brief description of the discipline	Prerequisite s	Post- requisites
1	2	3	4	5		6	7	8	9	10	11
Module 1- Personal and socio- humanitar ian competen cies	БД	BK2	Foreign language (professional)	120	4	1	ER2	Mast adva The chara oral comu dialo prog resul abstr discu resul lang	ering professional English at an need level (for non-linguistic areas). study of the grammatical acteristics of the scientific style in its and written forms. Professional oral nunication in monological and gical form according to the educational ram. The ability to demonstrate the ts of research in the form of reports, acts, publications and public assions; to interpret and present the ts of scientific research in a foreign tage.	Bachelor's degree courses	Workshop on Professional Foreign Language / Academic Writing

Module 2- Economic and manageria 1 competen cies	БД	BK3	Management Psychology	60	2	2	ER1	The discipline is aimed at studying the theoretical and methodological foundations of management psychology; the main socio-psychological problems of management and ways to solve them; familiarization with the methods of studying important socio-psychological characteristics of the individual and the team, professional, interpersonal and intrapersonal problems by means of management psychology.	Strategic management	Research work of a master's student, Final certification of a master's degree
M 2 – Economic and managem ent competen cies	БД	BK4	Management	60	2	2	ER3	The discipline studies the following topics: The essence and content of management, features of the strategy of a business unit, corporate strategy: management of a package of business types, analysis and evaluation of the external and internal environment of the organization, competitive and corporate strategies of the company, strategic analysis of diversified companies, management of strategic changes.	Strategic management	Research work of a master's student, Final certification of a master's degree
Module 3- Research competen cies	пд	BK4	Methods of scientific research	120	4	1	ER4	The discipline is aimed at studying the methodology and methodology of scientific research, the formulation of the topic, goals and objectives of scientific research, the methodology of theoretical and experimental research. analysis of theoretical and experimental research and formulation of conclusions and conclusions, methods of implementation and effectiveness of scientific research. organizations and processing of research	Bachelor's degree courses	Research work of a master's student, Final certification of a master's degree

								work. modern methods of generating ideas in solving scientific and technical problems.		
Module 4- Research competen cies			Experimental research work of a master's student	720	24	2,3,4	ER3 - ER5	The form of conducting research work of a master's student can be specified and supplemented depending on the specifics of the master's program, the topic of the master's thesis. The research work of a master's student includes: - research work; - scientific internship; - scientific publications (participation in scientific conferences and seminars); writing a master's thesis.	Cycle of basic disciplines (DB), Cycle of profile disciplines (PD)	Final certification
			Final certification: Registration and defense of the master's project	360	12	4	ER1 - ER1 1	The purpose of the final certification of a master's student is to assess the learning outcomes achieved upon completion of the Master's degree program.	Cycle of basic disciplines (DB),	
Module 5- Profession al competen	пд	ВК9	Theoretical aspects of the water-thermal regime of the	180	6	1	ER6	Study of special methods for the normal operation of transport infrastructure facilities in extreme conditions; Practical implementation of the operation of	Cycle of profile disciplines( PD),	Strengthenin g the infrastructure of linear

ciesPD VK10			soils of the roadbed					transport infrastructure facilities built on sedimentary, water-saturated, alluvial, swollen, saline, puchinisty soils, as well as strengthening of foundations and foundations in karst and under-worked territories and in earthquake-prone areas of Kazakhstan.	Research and development	structures Complex design solutions for the reconstructio n of transport structures Design and estimate documentatio n for the construction of linear structures Feasibility study of BIM
	PD	VK10	Linear structures	150	5	2	ERO 6	The discipline studies the theoretical foundations of constructing computational finite element models of various transport objects based on the methods of the theory of elasticity, plasticity, mechanics of a deformable solid and numerical analysis, the basic techniques for constructing element matrices and systems of equations, methods and algorithms for solving static, dynamic, oscillatory and physically nonlinear complex engineering problems using the finite element method.	ПД бакалавриат а	study of BIM technology of linear structures Strengthenin g the infrastructure of linear structures Complex design solutions for the reconstructio n of transport structures Design and

						estimate
						documentatio
						n for the
						construction
						of linear
						structures
						Feasibility
						study of BIM
						technology of
						linear
						structures
Total		1620	54			

# 9. CATALOG OF ELECTIVE COMPONENT DISCIPLINES

# EDUCATIONAL PROGRAM

7M07160-Transport facilities

# Level of education:Master's degree profile training period: 1.5 years

		Discipli	ine	Total la intensit	abor ty					
Module	Cy cle	Comp onent T	Nam e	in acade mic hours	in acade mic credit s	Sem este r	Learn ing outco mes	Brief description of the discipline	Prerequisites	Post-requisites
1	2	3	4	5	6	7	8	9	10	11

M 1 - Personal and Social and Humanit arian Compete ncies	BD	CC 1	Practica l training in professi onal foreign languag e	60	2	2	PO2	The discipline "Practicum in a professional foreign language" includes mastering a foreign language at the international level (for non-linguistic areas). Preparation of written messages on topics related to the scientific work of the undergraduate. Development of skills in working with official documentation on various forms and types of international cooperation, explanatory and bilingual terminological dictionaries, as well as reference literature on the educational program. Development of skills in written and oral two-way translation.	Foreign language (professional)	Research work of a master student, Final certification of a master's degree
		CC 2	Acade mic writing				PO1	The discipline "Academic writing" is a methodology for writing scientific texts: essays, master's thesis, articles, public presentation and discussion of scientific papers at international conferences. Ability to formulate and substantiate your own thoughts, ideas and convey them to the target audience. To improve the skills of writing scientific texts, the ability to structure, format, select the style and language of description, a bibliographic list of printed publications and electronic resources.	Foreign language (professional)	Research work of a master student, Final certification of a master's degree
M 2 – Economi c and Manage ment Compete	BD	CC 1	Strategi c manage ment	90	3	1	PO1	The discipline is aimed at studying the essence and content of strategic management of a company, types of strategies, modern methods of strategic analysis, technology for the development and implementation of strategies, features of the development of strategic management in Kazakhstan. Forms the ability to formulate a company's	Undergraduate disciplines	Practical training in a professional foreign language, Academic writing, Strengthening

ncies					development strategy for assessing the internal and external environment, analyzing competitive strategies, applying various methods of management analysis, determining a strategy for personnel management, strategic changes		the infrastructure of transport facilities, Complex design solutions for the reconstruction of transport facilities, Psychology of management, Production management, Risk management
	CC 2	Busines s researc h		PO1	The discipline studies the following topics: Introduction to business research, the concept of business, development history, science and scientific research, the logic of the research process and its main stages, building a research structure, information support for business research, collecting empirical data, analysis methodology based on the BCG matrix, marketing information system, processing and analysis of primary data, market analysis.	Undergraduate disciplines	Practical training in a professional foreign language, Academic writing, Strengthening the infrastructure of transport facilities, Complex design solutions for the reconstruction of transport facilities, Psychology of

										management, Production management, Risk management
M 3 – Research Compete ncies	BD	CC 1	Theory of Probabi lity and Mathe matical Statistic s	120	4	1	PO3	Probability theory and mathematical statistics studies the simplest theorems of probability theory, systems of random variables, mathematical models for analyzing random phenomena for their adequate description and understanding, methods for solving standard problems using basic analytical tools, mathematical methods for constructing probable models and the implementation of these methods on real problems of natural science , practical activities and statistical processing of real data.	As part of the undergraduate educational program	Theory of elasticity and plasticity, Mechanics of a deformable solid, Production management, Risk management, Inspection and testing of artificial structures, Experimental methods for assessing the technical state of artificial structures
		CC 2	System analysis				PO3	The discipline examines the questions of conducting research by performing a sequence of pre-planned actions both with any variables	As part of the undergraduate educational	Theory of elasticity and plasticity,

								or constant objects of research, and with complex systems. The objects can be a variety of problems discovered during the development of new and the functioning of previously created systems, and identified in the very processes of preparation and decision-making.	program	Mechanics of a deformable solid, Production management, Risk management, Inspection and testing of artificial structures, Experimental methods for assessing the technical state of artificial structures
Module 3- Professio nal competen cies	BD	CC 1	Strengt hening the infrastr ucture of transpo rt facilitie s	180	6	1	PO7	The discipline studies the issues that consist in conducting research by performing a sequence of pre-planned actions with any variable or permanent objects of research, as well as with complex systems. The objects can be a variety of problems that are detected during the development of new and functioning of previously created systems, as well as identified in the very processes of preparation and decision-making.	Strategic management, Business research, Methods of scientific research, the finite element method in the problems of transport construction	Design and estimate documentation for the construction of linear structures Feasibility study of BIM technology of linear structures Construction of transport

							structures
							Arrangement of transport facilities
	CC 2	Compre hensive design solution s for the reconstr uction of transpo rt facilitie s		PO7	The discipline studies modern problems and tasks of reconstruction of transport structures, the regulatory framework of transport infrastructure. Overview of the structures of transport structures. The main provisions of the survey, diagnostics, monitoring of the condition and testing of transport facilities. Analysis of materials for the design of reconstruction of transport structures. Assessment of the quality indicators of transport infrastructure facilities. Development of measures and adoption of complex design solutions for strengthening transport facilities.	Strategic management, Business research, Methods of scientific research, the finite element method in the problems of transport construction	Design and estimate documentation for the construction of linear structures Feasibility study of BIM technology of linear structures Construction of transport structures Arrangement of transport facilities

Module 5- Professio nal competen cies	BD	CC 1	Design and estimat e docume ntation for the constru ction of linear structur es	180	6	2	PO8	The discipline studies a standard set of documents that substantiate the feasibility and feasibility of the project, revealing its essence, allowing the project to be implemented. The content and scope of design and estimate documentation for linear structures according to design and operation standards, instructions. Implementation of laying of linear structures and reconstruction of objects with the use of modern digital technologies. Development of design documentation for the construction of linear structures using digital measuring devices.	Methods of scientific research, the finite element method in problems of transport construction, Elasticity and plasticity, Mechanics of an elastic deformable solid,	Construction of transport structures\ Arrangement of transport facilities Monitoring of transport facilities Assessment of the operational condition of
		CC2	Feasibil ity study of the Imtech nology of linear structur				PO8	The discipline studies the essence, principles and directions of digital activity of organizations( enterprises), the information policy of the Republic of Kazakhstan, the State Program "Digital 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,	infrastructure of transport structures, Complex design solutions for the reconstruction of transport structures	linear structures Research work, final certification

-			-		-			
	es					digital technologies used in the transport industries of the Republic of Kazakhstan and the possibility of using BIM technology in real estate management, the main problems associated with the introduction of an information modeling system for structures at the operational stage.		
	Monito ring of transpo rt facilitie s	180	6	2	PO 9	The discipline studies the monitoring of transport structures - systematic, periodic monitoring of the state of soils, bases and the environment with the determination of their physical and technical characteristics. Timely assessment of deviations from the project, regulatory documents, forecasting the mutual impact of the object and the environment in the future, providing adequate feedback for timely identification of actual changes, preventing negative processes and eliminating their consequences.	Elasticity and plasticity, Mechanics of an elastic deformable solid,	Modern technologies and equipment for the transportation of hydrocarbon raw materials Technology of transportation of oil and gas mixtures Regulatory requirements for the calculations of pipeline systems Technical standards for the design of pipeline systems Research work,

							final certification
Module 5- Professio nal competen cies		Assess ment of the operati onal conditi on of linear structur es		PO 9	The discipline studies the assessment of the transport and operational condition of linear structures, compliance with the regulatory requirements of the main transport and operational indicators, the quality of reconstruction or repair at the time of its commissioning, the physical aspects of phenomena that cause special loads and impacts on structures, the main provisions and principles of ensuring the safety of objects in the near future, taking into account the increase in the speed of oil and gas transportation and changes in natural and climatic conditions.	Упругость и пластичность, Механика упругого деформируемого твердого тела,	Modern technologies and equipment for the transportation of hydrocarbon raw materials Technology of transportation of oil and gas mixtures Regulatory requirements for the calculations of pipeline systems Technical standards for the design of pipeline systems Research work, final certification

Module 5- Professio nal competen cies		Modern technol ogies and equipm ent for the transpo rtation of hydroca rbon raw materia ls	150	5	2	PO 10	The discipline studies the technological characteristics and principles of combining equipment for the preparation, transport and storage of hydrocarbons into a single technological line at the design stage; the main ways to protect the inner surface of field pipelines and equipment from complicating processes of hydrate formation, corrosion and deposition of asphalt-resin-paraffin formations; the main provisions of industrial and environmental safety during transport and storage of hydrocarbons in the field pipeline system.	Workshop on professional foreign language, Academic writing, Strategic Management, Business research, Probability theory and mathematical statistics, System analysis, Strengthening the infrastructure of transport facilities, Integrated design solutions for the reconstruction of transport facilities	Regulatory requirements for the calculations of pipeline systems Technical standards for the design of pipeline systems Research work, final certification
		Techno logy of transpo rtation of oil and gas mixture s				PO 10	The discipline studies the most economical and progressive technologies, a significant increase in the efficiency of the transport process, bringing the technical potential of transport industries in line with the needs of the oil economy in transportation,modern methods for determining the technological parameters of pipelines in order to reduce the effects of complicating processes, servicing multidirectional oil flows of different	Probability theory and mathematical statistics, System analysis, Elasticity and plasticity, Mechanics of an elastic deformable solid	Regulatory requirements for the calculations of pipeline systems Technical standards for the design of pipeline systems

						intensity, technological processes of pipeline transport of oil, petroleum products and gas, as well as the main types of pipeline equipment and the principles of its operation.		Research work, final certification
	Regulat ory require ments for the calculat ions of pipeline systems	120	4	2	PO 5 PO 11	The discipline studies the basic laws and regulations on the properties of hydrocarbon systems when moving along the chain "systems of preparation – transport-storage – delivery of commercial products to the system of main pipelines"; the requirements of regulatory and technical documentation of field pipeline transport during the operation of these objects; the main ways to protect the inner surface of field pipelines and equipment from complicating processes of hydrate formation, corrosion and deposition of asphalt-resin-paraffin formations	Workshop on professional foreign language, Academic writing, Strategic Management, Business research, Probability theory and mathematical statistics, System analysis, Strengthening the infrastructure of transport facilities, Integrated design solutions for the reconstruction of transport facilities	Research work, final certification
	Technic al standar ds for				PO 5 PO 11	The discipline studies the industry's existing norms and rules for designing gas and oil pipelines, storage tanks for oil and petroleum products, methods for calculating the volume	Workshop on professional foreign language, Academic	Research work, final certification
	the design					of tank farms, regulatory methods for calculating the design according to limit	writing, Strategic Management,	

		of pipeline systems				states, a comprehensive assessment of reliability in accordance with modern requirements, time factors, the probabilistic nature of the characteristics of load-bearing capacity and loads, the level of practical applications of methods for quantifying the reliability of pipeline transport for oil and petroleum products.	Business research, Probability theory and mathematical statistics, System analysis, Strengthening the infrastructure of transport facilities	
							facilities, Integrated design solutions for the reconstruction of	
Total			1080	36			transport facilities	

### 7. EXPERT OPINION

City Road Centre Товарищество с ограниченной ответственностью "City Road Centre

050042 г. Алматы, ул. Курмангазы, уг.ул.Фурманова, Д.33/160, кв.26

тел./факс: 8(727) 2728762 E-mail:crc.too@mail.ru

Исх. №19-52

# «27» января 2021 г.

#### ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

# на образовательные программы 8D07165 – «Транспортные сооружения», 7M07160-«Транспортные сооружения»,7M07159-«Транспортные сооружения»

Разработанная в АО «Академия логистики и транспорта» образовательная программа 8D07165 — «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки — профильное, срок обучения — 1,5 года), 7M07159-«Транспортные сооружения» (направление подготовки — научнопедагогическое, срок обучения — 2,0 года), профессорско- преподавательским составом кафедры «Транспортное строительство» АО

«Академия логистики и транспорта» - сениор-лектором, д.т.н. Исмагуловой С.О., ассистент профессором, к.т.н. Карибаевой Г.Б., профессором д.т.н. Махметовой Н.М., профессором АЛТ, д.т.н. Хасеновым С.С., лектор м.т.н., Курбеновой А.К,асс-проф.Ускембаевой Б.О.

Разработанная образовательная программа включает следующие структурные элементы: сведения о рассмотрении, согласовании и утверждении программы, разработчиках и экспертах, нормативные ссылки, паспорт образовательной программы, компетентностная модель выпускника, сведения о дисциплинах, структура образовательной программы (мажор), структура образовательной программы (минор), учебный план на весь срок обучения, каталог элективных дисциплин.

Образовательные программы 8D07359 — «Строительство транспортных сооружений» по направлению подготовки 8D07165 — «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки — профильное, срок обучения — 1,5 года), 7M07159-«Транспортные сооружения» (направление подготовки — научно- педагогическое, срок обучения — 2,0 года), представлена в соответствии требованиям к содержанию и оформлению программы.

В компетенциях образовательной программы описана способность магистрантов самосовершенствованию и профессиональному росту личности с разносторонними гуманитарными и естественнонаучными знаниями и интересами а также способен критически переосмысливать накопленный опыт, изменять при необходимости профиль своей профессиональной деятельности, осознания социальной значимости своей будущей профессии, обладания высокой мотивацией к выполнению профессиональной деятельности.

Образовательные программы 8D07165 — «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки — профильное, срок обучения — 1,5 года),7M07159-«Транспортные сооружения» (направление подготовки — научно- педагогическое, срок обучения — 2,0 года), разработана на высоком профессиональном уровне и рекомендуется к использованию в учебном процессе высших технических учебных заведений.

Директор **TOO**«City Road Centre City Road Centre

Алимкулов Д. Ж.

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ жауапкершілігі Шектеулі

Серіктестігі



РЕСПУБЛИКА КАЗАХСТАН Товарищество с Ограниченной Ответственностью

«Казахский дорожный проектный институт»

«Қазақ жол жобалау институты»



Казақстан Республикасы, Алматы каласы, Навон көшесі 58 Республика Казахстан, г. Алматы, ул. Навон 58 тел.: 246-33-51, e-mail: kazdpi@list.ru

Исх. №05/21 от «27» январь 2021г.

### ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

# на образовательные программы 8D07165 – «Транспортные сооружения», 7M07160-«Транспортные сооружения», 7M07159-«Транспортные сооружения»

Разработанная в АО «Академия логистики и транспорта» образовательная программа 8D07165 — «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки — профильное, срок обучения — 1,5 года),7M07159-«Транспортные сооружения» (направление подготовки — научнопедагогическое, срок обучения — 2,0 года), <u>профессорско-</u> <u>преподавательским</u> <u>составом</u> кафедры «Транспортное строительство» АО «Академия логистики и транспорта» - профессором АЛТ, д.т.н. Базановой И.А., сениор-лектором, д.т.н. Исмагуловой С.О., ассистент профессором, к.т.н Карибаевой Г.Б., профессором д.т.н. Махметовой Н.М., профессором АЛТ, д.т.н. Хасеновым С.С., лектор м.т.н., Курбеновой А.К.

Разработанная образовательная программа включает следующие структурные элементы: сведения о рассмотрении, согласовании и утверждении программы, разработчиках и экспертах, нормативные ссылки, паспорт образовательной программы, компетентностная модель выпускника, сведения о дисциплинах, структура образовательной программы, структура образовательной программы, учебный план на весь срок обучения, каталог элективных дисциплин.

Образовательные программы 8D07165 — «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки — профильное, срок обучения — 1,5 года),7M07159-«Транспортные сооружения» (направление подготовки — научно- педагогическое, срок обучения — 2,0 года), представлена в соответствии требованиям к содержанию и оформлению программы.

В компетенциях образовательной программы описана способность докторантов, магистрантов к практическому применению приобретенных в процессе обучения знаний, умений и навыков в профессиональной деятельности. Образовательные программы 8D07165 – «Транспортные сооружения», 7M07160-«Транспортные сооружения» (направление подготовки – профильное, срок обучения – 1,5 года),7M07159-«Транспортные сооружения» (направление подготовки – научно- педагогическое, срок обучения – 2,0 года), (направление подготовки – профильное, срок обучения – 1,5 года) разработана на высоком профессиональном уровне и рекомендуется к использованию в учебном процессе высших технических учебных заведений.

> Генеральный директор ТОО «Казахский дорожный проектный институт»

Кансейтов А.Ш.

#### Лист согласования ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЫ

# Наименование: «7М07160 – ТРАНСПОРТНЫЕ СООРУЖЕНИЯ

Уровень подготовки: магистратура профильная

Код и классификация направлений подготовки: 6B071 – Инженерия, инженерное дело Код и группа образовательных программ: M104 - Транспорт, транспортная техника

N₂	Ф.И.О.	Место работы и	Подпись	Дата
п/п		должность		
1	Tacharas E.B.	30l. Rop. Elle"	Allen .	24.01.21
2.	Cerryrobs A. M.	306-riocp u lleft	Vell	27.01.21
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Publication number	Date of introduction	Changes	signature
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# **1. CHANGE REGISTRATION SHEET**