Joint-Stock Company "Academy of Logistics and Transport"



APPROVING IT US ALT ot solution 20 city of (Protocol no. /2) President-Rector Amirgalieva S. N.

EDUCATIONAL PROGRAM

Name: "7M07162- Transport infrastructure engineering "

Level of training: Master's degree

Code and classification of training areas: 7B071 Engineering and engineering trades

Code and group of educational programs: M210 - Transmission and infrastructure

Date of registration in the registry: 10.06.2021

Registration number: 7M07100400

Almaty, 2023

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1. INFORMATION ABOUT THE REVIEW, APPROVAL AND APPROVAL OF THE PROGRAM, DEVELOPERS, EXPERTS AND REVIEWERS

1 DEVELOPED:

<u>Assistant Professor</u> (position) <u>Head of PCH-46, art. Alm</u> (position) <u>Assistant Professor</u> (position) <u>Associate Professor</u> (position)

<u>Student gr. MII-UTU-21-1k</u> (position)

2 EXPERTS:

Director of the branch of JSC NC "KTZ " - "Almaty branch of the backbone network" (position) Head of the Track Department of the branch of JSC NC "KTZ " -"Almaty branch of the main network" (position)



aigr

(signature

Karibayeva G. B. (Full name) <u>Amirov D. G.</u> (Full name) <u>Ismagulova S. O.</u> (Full name) <u>Ibraimov A. K.</u> (Full name)

Serikbay A.D. (Full name)

Zheksenbiev A. T. (Full name)

Nurbolat R. V.. (Full name)

3 REVIEWER: Candidate of Technical Sciences, Associate Professor, KazNTU named after K. I. Satpayev (position)

4 REVIEWED AND RECOMMENDED: AC meeting (department) «...» Protocol №₁ « <u>15</u> » <u>03</u> 2023г

COC-UMB meeting «...» Protocol No.4 «<u>16</u>» <u>03</u> 2023z EMC meeting Protocol No.4 **4** 29» <u>03</u> 2023z

(signature)

(signature) (signature)

(signature)

(Full NAME)

Dzholdasova K. K.

Ismagulova S.O

(FULL NAME) Chigambayev T.O (FULL NAME)

Zharmagambetova M.S. (FULL NAME)

5 APPROVED by the decision of the Academic Council dated «<u>30</u>» <u>03</u> 2023r. № <u>13</u> 6 UPDATED

2. REGULATORY REFERENCES

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

1. Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III (with amendments and additions as of March 27 2023, 2007).

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

3. Industry framework of qualifications in the field of "Education", approved by the Minutes of the Meeting of the Industry 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 No. 3 dated November 27, 2019.

4. State Mandatory Standard of Higher Education (Order No. 66 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated 20February 20, 202366).

5. Qualification directory of positions of managers, specialists and other employees, approved by the Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated 12aBrycra 202August 12, 2012 No. 309.

6. Rules of organization of the educational process on credit technology of training in organizations of higher and (or) postgraduate education, 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. (with additions and changes from 04april 2023 No. 145).

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

8. Algorithm for inclusion and exclusion of educational programs in the Register of Educational programs of Higher and Postgraduate Education, approved by Order No. 665 of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 (with additions and amendments as of 23December 2-3, 2020 No. 536).

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

10. Atlas of New Professions: HighwayHybridizer»

2. Passport of the educational program

N⁰	Field name	Note
1	Registration Number	7M07100400
2	Code and classification of the field	7M07 Engineering, manufacturing and construction
	of education	industries
3	Code and classification of training	areas 7M071 Engineering and engineering
4	Code and group of educational	M210 Backbone networks and infrastructure
	programs	
5	Name of the educational program	M07162-Transport infrastructure Engineering
6	Type of OP	New
7	Goal of OP	Training of technical and managerial personnel,
		capable of solving production tasks in the field of
		design, operation and engineering of transport
		infrastructure, based on the achievements of science
0	ISCED	and technology.
0		
9	/ NRC	/ Level 7
10	Distinctive features of the OP	Level /
11	Distinctive features of the OP	NO
	Partner University (DDOP)	-
12	Form of study	Full
12	time Language of study	Kazakh Russian
15	-time Language of study	Kazakii, Kussiali
14	Amount of credits	90
15	Awarded academic degree	Master of Engineering and Technology in the
		educational program M07162-Transport
		infrastructure Engineering
16	Availability of an appendix to the	KZ12LAA00025205 (004)
	license for the direction of	
	personnel training	
17	Availability of OP accreditation	Available
	Name of the accreditation body	Independent Agency for Quality Assurance in
		Education (IQAA)
	Accreditation period	28.05.2022-27.05.2027

4. GRADUATE COMPETENCE MODEL

Objectives of the educational program:

1. Promotion of the graduate's ability to:

1) demonstrate developing knowledge and understanding acquired at the higher education level, which is the basis or opportunity for original developmentor application of ideas;

2) apply knowledge, understanding, and the ability to solve problems in new or unfamiliar situations within the contexts and frameworks of broader (or interdisciplinary) fields related to the field being studied;

3) integrate knowledge, deal with complexities, and make judgments based on incomplete or limited information, taking into account ethical and social responsibility for applying these judgments and knowledge;

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

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

1) develop design documentation for the creation and modernization frailways, highways, transport and oil and gas facilities;

2) perform calculation and designыe works for the creation and modernization of the transport complex of the Republic of Kazakhstan;

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

4) conduct a technical and economic analysis, comprehensive justification of decisions taken and implemented in the field of operation and repair of railways, bridges, tunnels and subways.

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 in the operation and repair of railways, bridges, tunnels and subways

Learning outcomes:

PO1 – Make organizational and managerial decisions using management and marketing methods, taking into account the psychological characteristics of society

PO2-To study the results of operational development methodology using scientific sources in a foreign language

PO3 –Choose information and analytical automated systems during the operation of transport facilities of various enterprises based on the principles of lean manufacturing

PO4-Compare SMART technologies used for the future development of transport in the implementation of information technologies, implementation of digital transformation strategies in the production process.

PO5 – Create matrices of equation elements for modeling engineering problems of transport infrastructure, developing a methodology for experimental research and processing them when drawing up an application for an invention.

PO6- Evaluate the design of transport infrastructure structures, taking into account technical and operational parameters and using documentation for the diagnosis of objects with the detection of defects and deformations during inspections, as well as surveys.

RO7 – Develop methods and means of mechanization, machinization and automation of technological processes during the repair and operation of objects with further monitoring of their condition and development of measures to eliminate defects

PO8- Analyze the quality of estimated design solutions in accordance with the requirements of regulatory documents using digital technologies

Area of professional activity: areas of science and technology related to railwayeлeзнодорожныtransport транспортаndtransport infrastructure engineering

Objects of professional activity:

- Local executive authorities in the field of railway transport and transport infrastructure engineering and their regional structures;

transport and subways, as well as industrial transport.

- Organizations and enterprises of the transport industry in the field of management, operation, maintenance of railway tracks, urban rail – Organizations and enterprises of the transport industry in the field of technologies of material and processing production during maintenance, urban rail transport, subways and industrial transport;

Types of professional activity:

- production and technological;

- organizational and managerial;

- experimental and research;

- settlement and projectinformation.

Functions of professional activity:

1) management activities involving the creation of a strategy for the functioning and development of industry structures, the organization of conditions;

2) preparation and modernization инфраструктуры of backbone network infrastructure and management systems.

3) analysis and development of solutions to improveих technological processesoв, development of new approaches, use of various methods;

4) solving research and project problems related to improving the efficiency of managed processes.

List of specialist positions:

-first head of a production organization (enterprise),

- deputy head of the production organization (enterprise),
- chief engineer of a production organization (enterprise),
- head of a structural division of a production organization (enterprise),
- deputy head of a structural division of a production organization (enterprise),

-manager, engineering and technical worker, head of the laboratory.

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

Professional certificates obtained at the end of training: not provided

Requirements for the previous level of education: Bhigher education (bachelor's degree).

The Master's degree program профильной магистратурыincludes one type of practice: - Production practice

Experimental research work of a Master's student (EIRM)

Planning of EIRM in weeks is determined based on the standard working time of the master's student during the week. The number of credits allocated for the implementation of EIRM in a particular academic period is determined by the working curriculum of the professional educational program.

The EIRM must:

1) correspond to the profile of the master's degree program in which the master's project is being implemented and defended;

2) be based on modern achievements of science, technology and production and contain specific practical recommendations, independent solutions to management tasks;

3) be performed using advanced information technologies;

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

Within the framework of EIRM, the individual work plan of a master's student for familiarizing himself with innovative technologies and new types of production provides for a mandatory scientific internship in scientific organizations and (or) organizations of relevant industries or fields of activity.

EIRM is planned in parallel with other types of academic work or in a separate period.

The results of experimental research work at the end of each period of its completion are drawn up by the master's student in the form of a report.

The final outcome of the EIRM is a master's project.

The aim of EIRM is to obtain new results that are important for theory and practice in this subject area, as well as to master theoretical and experimental methods for studying objects (processes, effects, phenomena, structures, projects) in this subject area.

The tasks of the EIRM are:

- organization of master's student training in the theory and practice of conducting experimental research;

- development of creative thinking and independence in the master's student, deepening and consolidating the obtained theoretical and practical knowledge;

- identifying the most gifted and talented undergraduates, using their creative and intellectual potential to solve urgent problems of science and technology;

- developing students ' interest in scientific creativity, teaching them methods and ways to independently solve applied problems.

Scientific internship is conducted for the purpose of:

- completing master's thesis tasks;

- 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 in the specialty being trained, as well as mastering advanced foreign experience.

Requirements for the EIRM:

1) corresponds to the profile of the master's degree program in which the master's project is being implemented and defended;

2) is based on modern achievements of science, technology and production and contains specific practical recommendations, independent solutions to management tasks;

3) performed using advanced information technologies;

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

The department where the master's program is implemented defines special requirements for training a master's student in the research part of the program.

Special requirements include:

- knowledge of modern problems of this branch of knowledge;

- availability of specific specific knowledge on the scientific problem studied by the master's student;

- the ability to practically carry out scientific research, experimental work in a particular scientific field related to the master's program (master's project);

ability to work with specific software products and specific Internet resources.

Scientific supervisors are required to ensure a high-quality organization of EIRM and its methodological formulation.

The main content of the EIRM is reflected in the individual master's work plan.

EIRM content

Experimental research work at the department can be carried out in the following forms:

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

- participation in scientific and practical seminars, theoretical seminars (on the subject of research), as well as in the scientific work of the department;

- presentation at conferences of young scientists;

- preparation and publication of abstracts and scientific articles;

- preparation and protection of scientific reports in the areas of ongoing scientific research;

- participation in a real research project carried out at the department within the framework of budgetary and extra-budgetary research programs (or within the framework of a grant received), or in a partner organization for the implementation of master's training;

- preparation and defense of a master's project.

The list of forms of experimental research work at the department for undergraduates of specialized training can be specified and supplemented, depending on the specifics of the master's program.

EIRM results

In addition to the above forms, the result of experimental research work is:

in the first semester:

- the project topic approved by the Academic Council of the Academy;

- an individual master's work plan developed and approved, indicating the main activities and deadlines for their implementation;

- defining the goals, objectives, scope, and subject of the study;

in the second semester:

- study and collect practical material for the master's project, including the development of a methodology for data collection, methods for processing results, and assessment of their reliability;

- performing at least 50% of the volume of theoretical and experimental work on the research topic;

- implementation of other activities provided for in the individual master's work plan;

in the third semester:

- processing and analysis of the actual material for the master's project, including an assessment of its sufficiency to complete work on the project, development and construction of graphic images and other illustrations on the research topic;

- performing 100% of the volume of theoretical and experimental work on the research topic;

- publication of at least the 1st publication and / or the 1st presentation at the scientific and practical conference;

- implementation of other activities provided for in the individual master's work plan;

- passing the semester certification based on the results of the EIRM;

- preparation of the final text of the master's project.

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 profile level of the master's student, the formed professional and managerial competencies, the readiness to

independently perform professional tasks and the 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 a preliminary defense(extended session) based on the results of a dissertation study, are allowed to complete the final certification.

5. MATRIX OF CORRELATION OF LEARNING OUTCOMES IN THE EDUCATIONAL PROGRAM WITH ACADEMIC DISCIPLINES/MODULES

N⁰	Name of discipline	mber of ans	a Mat the	trix con educa	relati tional	ng the prog liscipl	e resul ram w lines	lts of t vith ac	trainir adem	ng in ic
		, the nu lo	PO1	PO2	PO3	P04	PO5	P06	PO7	PO8
1	2	3	4	5	6	7	8	9	10	11
1	Management	2	+							
2	Foreign language (professional)	2		+						
3	Psychology of management	2	+							
4	Lean production	9			+					
5	SMART technologies in transport	9				+				
6	Application of the finite element method in problems of transport infrastructure	9					+			
7	Methods of experimental research	6		+			+			
8	Manufacturing practice	7				+		+	+	
9	Diagnosis transport infrastructure	9						+		
10	monitoring the technical condition of infrastructure facilities of transport	9						+	+	
11	Device transport infrastructure	6						+		
12	Maintenance and repair infrastructure transport	6						+	+	
13	estimated business in transport construction	6								+
14	Project documentation and transport facilities	6								+
15	Innovative technologies in transport construction	6			+	+				
16	the Digitalization of the transport infrastructure	6				+		+		
17	Experimentally- the research work of a student including the internship and the execution of a thesis	18								
18	the Decoration and protection of a thesis	8	+	+	+	+	+	+	+	+

6. STRUCTURE OF THEMASTER'S DEGREE PROGRAM IN THE RELEVANT FIELD

		of discipline cy	clesTotal labor
n /	a Name	intensity in	in academic
		academic hours	credits
1.	Theoretical training	1920	64
1.1	Cycle of basic disciplines (DB)	450	15
1)	University component (VC):	180	6
	Management	60	2
	Foreign language (professional)	60	2
	Management psychology	60	2
2)	Optional component (KV)	270	9
1.2	Cycle of profile disciplines (PD)	1470	49
1)	University component	660	22
2)	Optional component	810	27
2	Experimental research work of a master's		
<i>L</i> .	student		
	Experimental and research work of a master's		
1)	student, including passing an internship and	540	18
	completing a master's thesis		
3	Additional types of training (FE)	-
4	Final certification (IA)	240	8
1)	Preparation and defense of a master's thesis	240	8
	Total	2700	90

JSC "Academy of Logistics and Transport"

CURRICULUM

Form of study: full-time

<u>Training area</u>: 7M071-Engineering and Engineering

Duration of training: 1.5 years

Group of educational programs: M210-Backbone networks and infrastructure

Name of the educational program: 7M07162-Transport Engineering infrastructure

Admission: 2023

Degree: Master of Engineering and Technology

			Total I	abor	Cor	ntrol	Amou	unt of tr	ainina	load c	ontact	hours	Distribu	ition by s	emester	
			inten	sity	sem	ester	Amot		annig	ioau, c	ontact	nours	1st c	ourse	2nd	
Nº	Disciple	Name of cycles and disciplines	nic	nic		_	ILS	C	lassroo setting	om s	5	RO	1 sem.	2 sem.	3 sem.	Assignm ent to the departme
			in acaden hours	in acaden credits	Exam	KP (KR	Total hou	lectures	practical features	laboratory data	SROP	SRO	15 weeks	15 weeks	15 weeks	nt
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.				(CYCLE	OF B	ASIC DIS		NES (D	B):				1	1	
1.1.	University co	omponent:	180	6	3		180	23	22	0	24	111	4	2	0	
1.1.1.	23-0-MVK- Meng	Management	60	2	1		60	15			8	37	2			LMT
1.1.2.	23-0-MVK- Iya(P)	Foreign language (professional)	60	2	1		60		15		8	37	2			YAP
1.1.3.	23-0-MVK- PU	Management psychology	60	2	2		60	8	7		8	37		2		SRSiFV
1.2.	Component	of your choice:	270	9	1	0	270	45	45	0	8	172	0	9	0	
122	23-0-MKV- BP	Lean manufacturing	270	0	2		270	45	45		0	170		0		20
1.2.2.	23-0-MKV- SMARTTT	SMART technologies in transport	210	5	2		210	40	40		0	172		3		μ3
	TOTAL by D	B cycle:	450	15	4	0	450	68	67	0	32	283	4	11	0	
2.				C	YCLE	OF PR	OFILE D	SCIPL	INES ((PD):						
2.1.	University co	omponent:	660	22	3		660	75	75	0	16	284	9	6	7	
2.1.1.	23-61/62-M VK- PMKEZIST	Application of the finite element method in transport infrastructure problems	270	9	1		270	45	45		8	172	9			si
2.1.2.	23-0-MVK- MER	Operational development methodology	180	6	2		180	30	30		8	112		6		OY
2.1.3.	23-0-M-VK- PPr	Production practice	210	7	3		210								7	si
2.2.	Component	of your choice:	810	27	4	0	810	135	135	0	32	508	15	12	0	
	23-61/62-M KV-DOTIs	Diagnostics of transport infrastructure objects	070		1		070	45	45		0	170				ci
2.2.1.	23-61/62-M KV-KTSIsOT	Monitoring the technical condition of transport infrastructure facilities	270	9	I		270	40	45		0	172	9			51
	23-61/62-M KV-UOTIs	Construction of transport infrastructure facilities	190	6	1		190	30	30		8	112	6			ci
2.2.2.	23-61/62-M KV-SRIsOT	Maintenance and repair of transport infrastructure facilities	100	0			100	30	30		0	112	0			31
	23-0-MKV- PSDeloTS	Design and estimate work in transport construction														
2.2.3.	23-0-MKV- PSDTS	Design and estimate documentation of transport structures	180	6	2		180	30	30		8	112		6		si



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2.2.4.	23-0-MKV- ITTS	Innovative technologies in transport construction	180	6	2		180	30	30		8	112		6		si
	23-0-MKV- TsisT	Digitalization of transport infrastructure														
	TOTAL for the	ne PD cycle:	1470	49	7	0	1470	210	210	0	48	792	24	18	7	
	TOTAL FOR COURSE OF	THE THEORETICAL STUDY (MSW):	1920	64	11	0	1920	278	277	0	80	1075	28	29	7	
3.	23-0-MVK- EIRM	Experimental research work of a master's student, including internships and master's projects	540	18									2	1	15	si
4.	23-0-MVK- OZMP	Design and defense of a master's project	240	8											8	si
	TOTAL FOR PERIOD:	THE ENTIRE TRAINING	2700	90			1920	278	277	0	80	1075	30	30	30	
				ADDIT	IONAL	. TYPE	ES OF TR	AININ	G (DVE	Ξ):						
5.	Additional types of training															

AGREED: Vice-Rector for AD Maley Zharmagambetova M. S. DAPC Director AGREED: DAPC Director Lipskaya M. A.

DEVELOPED BY: Director of the TI Institute Chigambaev T. O. Head of the Department Ismagulova S. O.

8. CATALOG OF UNIVERSITY COMPONENT DISCIPLINES

EDUCATIONAL PROGRAM

7M07162-Transport Infrastructure Engineering

Education level: Master's degree Duration of study: 1.5 years

Year of admission: 2023years

Cycle	Compon ent	Name of the discipline	Total academi c hours 4	l labor academi c credits 5	intensit y Semest er	Learni ng outcom es 7	Brief description of the discipline	Prerequisites	Post requireme nts
DB	VK	Management	60	2	1	PO1 The	purpose of the study is to generate knowledge about the organization as an object of management, to consider situational and process approaches in management, engineering and reengineering of business processes, to study the theory and practice of management, the role functions of the manager and subordinates, to study ways to plan the strategy of management activities, to encourage performers to perform high-performance work, to organize effective control, etc., to give practical skills in developing their own management style and tactics for making managerial decisions.	Fundamentals of economics and	pre- entreprene urship Safe production
Databa se	VK	Foreign language (professional)	60	2	1	PO2	Formation of foreign language communicative competence in the field of professional communication, systematization of skills and abilities necessary for undergraduates to further develop scientific linguistic, discursive and socio-cultural competencies, expansion of knowledge in a foreign language in professional vocabulary, terminology and their subsequent development. applications in research activities at the international level.	Foreign language	Psycholo gy of manage ment
DB	VK	Psychology of management	60	2	2	PO1	is aimed at studying the theoretical and methodological foundations of management psychology, the main socio-psychological problems of management and ways to solve them, familiarizing with the methods of studying important socio-psychological characteristics of the individual and the team, professional, interpersonal and intrapersonal problems by means of psychology management system.	Management , a foreign language (professional)мент, Иностранн ый язык (профессио нальный)	ЭксперЕ xperimen tal research work

of the PD	VC	Magistrantapplicati on of the finite element method in transport infrastructure problems	270	9	1	PO5	Studies the theoretical foundations of constructing computational finite element models of transport infrastructure using the main provisions of the theory of elasticity, plasticity, deformable solid mechanics and numerical analysis, basic techniques for constructing element matrices, algorithms for solving stationary, dynamic and physically nonlinear problems in order to form competencies in the field of applying finite element analysis to modeling complex engineering problems.	Construction mechanics	Experim ental research work of the magistra nta
PD	VK	Methods of experimental research	180	6	2	PO2, PO5	Formation of undergraduates ' skills and abilities in the field of development methodology in the form of an experiment. The concepts of experimental research methodology, typology of documentary sources, scientific and technical search, analytical and probabilistic statistical research methods, similarity and modeling in operational research, computer application in experimental research, classification and experimental tasks, experimental planning, assessment of the adequacy of theoretical solutions, design of scientific work results and implementation of experimental research are studied.	Methods of scientific research	Experim ental and research work of the magistra nta
PD	VK	Production practice	210	7	3	PO6, PO7, PO8	Consolidation of theoretical knowledge obtained in the course of training; acquisition of skills in the practical use of professional knowledge obtained during theoretical training; training in skills for solving practical and managerial problems; acquaintance with the specifics of the bachelor's professional activity in a particular production; formation of a professional position of a specialist, a style of behavior, mastering professional ethics.	Diagnostics of transport infrastructur e objects	Experim ental research work of the magistra ntedit
pd	vk	Work of a master's degree student Experimental research work	of a master' s degree student 540	18	1,2,3	PO4, PO6, PO7, PO8	Formed professional management competencies, readiness for independent performance of professional tasks and compliance of his training with the requirements of the master	Arrangement of transport infrastructur e objects	Experim ental research work Magistra nta
PD	VK	FINAL CERTIFICATION	241	8	3	RO4, RO6, RO7, RO8	The objectives of the thesis are to identify the degree of assimilation of the content of the educational program by the bachelor, to check his readiness for independent activity in the direction of the educational program, to consolidate and deepen practical work skills. It also provides for passing a comprehensive exam.	Monitoring of the technical condition of transport infrastructur e facilities	Experim ental and research work of the magistra nta840 28
Total			840		28				

9. CATALOG OF ELECTIVE COMPONENT DISCIPLINES

EDUCATIONAL PROGRAM

7M07162-Transport Infrastructure Engineering

Education level:Master's degree Course duration: 1.5 года

Year of admission: 2023

			Total	labor					
Cycle	Comp onent	Name of the discipline	Post requir ement s acade mic hours	acade mic credit s	intens ity Seme ster	Learn ing outco mes	Brief description	of the discipline	Prerequisites
1	2	3	4	5	6	7	8	9	10
DB	KV	Lean Production	270	9	2		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 time a long period of time, rational use of all types of resources, improvement of aspects of the organization's activities, involvement of employees in technological processes; formation of lean thinking among future managers, correlated with the ideas of sustainable development and conscious consumption concepts that are relevant for the modern world.	Ecology and life safety	Methodology of operational developments
		SMART technologies in transport					Intelligent technologies used in railway transport are considered and studied. The main concepts of the current state and prospects for the development of railway transport infrastructure based on SMART technologies are described. Familiarization of students and formation of skills to assess the improvement of operational safety of railway transport infrastructure facilities, taking into account the development of computer technologies, software and artificial intelligence.	Information and communication technologies	Design and estimate work in transport construction, Design and estimate documentation of transport structures

ofD	sq	high-speed transmission lines Diagnostics of transport infrastructure objects	270	9	1	Studies the logical correspondence between various requirements of regulatory literature in the diagnosis of transport infrastructure objects (calculation of load capacity, load and impact, load-bearing capacity, deformations and displacements, technical and technical characteristics of transport infrastructure objects) economic indicators, development of survey and test programs, proposals and measures for effective and safe diagnostic methods) in order to make the most optimal decisions on assessing their technical condition.	Digital diagnostics of construction objects	Innovative technologies in transport construction, Digitalization of transport infrastructure
		Monitoring of the technical condition of transport infrastructure objects				Studies the basics of analyzing the technical condition of transport infrastructure objects based on the results of surveys, developing methodological materials, proposals and measures for effective and safe methods of surveys and testing of transport infrastructure objects, basic methods and methods of surveys and testing of artificial structures necessary for the purpose of solving practical problems related to assessing their technical condition	Digital diagnostics of construction objects	Innovative technologies in transport construction, Digitalization of transport infrastructure
		Construction of transport infrastructure objects				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 on the current maintenance and repair of transport infrastructure facilities, taking into account their technical, technological and operational characteristics and a feasibility study of capital investments and operating costs.	Construction of railway track	Design and estimate documentation of transport structures, Design and estimate work in transport construction
ND	KV	Maintenance and repair of infrastructure objects of transport	180	6	1	Study of transport infrastructure objects of public and strategic service use by types of transport depending on various target functional purposes, classifications, types, technical and operational parameters, design and technical and economic solutions, methods design and calculation of structures of transport structures under various force impacts, taking into account their regional physical-geographical and natural- climatic location.	Construction of transport infrastructure objects, Maintenance and repair of transport infrastructure objects	Design and estimate documentation of transport structures, Design and estimate work in transport construction
PD	KV	Design and estimate work in transport	180	6	2	Studies functional and operational requirements of transport construction, requirements of regulatory and legislative acts and documents, design output data, development procedure	Construction of transport infrastructure	Design and defense of the master's project

		construction				development of design and estimate documentation with design and estimate documentation, general information about design and survey works and estimate documentation for transport construction.	facilities, Control of the technical condition of transport infrastructure facilities	
		Design and estimate documentation of transport structures	1			Studies the preparation of a set of documents that reveal the essence of the project and contain a justification for its feasibility and further implementation, made to ensure the reliability and durability of transport structures, using the theoretical foundations of compaction of the roadbed and rationing of the degree compaction, basic provisions on methods and means of ensuring the required degree of compaction of transport structures.	Construction of transport infrastructure facilities, Maintenance and repair of transport infrastructure facilities	Design and defense of the master's project
ND		Innovative technologies in transport construction	100		2	Study of 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 process easier and faster and management of operational activities	Arrangement of transport infrastructure facilities, Control of the technical condition of transport infrastructure facilities	Preparation and defense of the master's project
PD	ΚV	Digitalization of transport infrastructure	180	6	2	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, study of the principles of operation of the main components of digital systems, acquisition of theoretical knowledge in the development and implementation of	Arrangement of transport infrastructure facilities, Control of the technical condition of transport infrastructure facilities	Registration and defense of the master's project
Total			1080	36				

10. EXPERT OPINIONS

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу «7М07162–Иинженерия транспортной инфраструктуры»

Реализация образовательной программы «7М07162–Иинженерия транспортной инфраструктуры» осуществляется посредством последовательности изучаемых дисциплин, с установлением конкретных задач и целевых индикаторов. Четко прослеживается междисциплинарное взаимодействие, которое заключается в комплексной связи между содержанием отдельных учебных дисциплин, посредством которых достигается внутреннее единство программы подготовки специалистов.

В учебном плане образовательной программы определен перечень всех учебных дисциплин обязательного компонента и компонента по выбору, трудоемкость каждой учебной дисциплины в кредитах, последовательность их изучения, виды учебных занятий и формы контроля. Актуально изучение вопросов экологической обстановки и обеспечение условий безопасной трудовой деятельности на предприятиях железнодорожной отрасли. Образовательные траектории разработаны в соответствии с запросами для транспортно-коммуникационной отрасли.

Цель образовательной программы актуальна, сформулирована достаточно лаконично и объединяет в себе результаты обучения. В описании дисциплин отражены их цели и содержание, как индикатора достижения результатов обучения по данной образовательной программе. Также, в образовательной программе, разработанной на основе профессионального стандарта, отражены основные трудовые функции в компетенциях и результатах обучения, указаны виды связей с работодателями: проведение гостевых лекций, лекций ведущих топ менеджеров, наличие филиалов кафедр на базе организаций.

Таким образом, представленная на экспертизу образовательная программа «7М07162–Иинженерия транспортной инфраструктуры» по направлению подготовки кадров «7В071 Инженерия и инженерное дело», полностью соответствует требованиям ГОСО, имеет четкую последовательность при разработке, отвечает современным запросам рынка труда.

Эксперт

Начальник отдела пути филиала АО «НК» «КТЖ», «Алматинское отделение магистральной сети»

Нурболат Р.В

личная подпись, дата М.П.

11. REVIEWER'S CONCLUSION

Рецензия на образовательную программу «7М07162 – Инженерия транспортной инфраструктурьь»

Образовательная программа (бакалавр) ««7М07162 – Инженерия транспортной инфраструктуры» содержит следующую информацию: квалификация выпускника, форма и срок обучения, направление и характеристика деятельности выпускников, приведен полный перечень компетенций, которыми должен обладать выпускник в результате освоения данной образовательной программы.

Дисциплины учебного плана по рецензируемой образовательной программе формируют весь необходимый перечень общекультурных и профессиональных компетенций, предусмотренных ГОСО по соответствующим видам деятельности.

В учебном плане образовательной программы определен перечень всех учебных дисциплин обязательного компонента и компонента по выбору, трудоемкость каждой учебной дисциплины в кредитах, последовательность их изучения, виды учебных занятий и формы контроля. Каталог элективных дисциплин, Каталог внутривузовского компонента полностью отражают преемственность дисциплин (несколько дисциплин).

Соблюдена последовательность изучения дисциплин, включены дисциплины необходимые для производства и технологического процесса.

Содержание рабочих программ учебных дисциплин и практик позволяет сделать вывод, что оно соответствует компетентностной модели выпускника.

Образовательная программа предусматривает профессионально-практическую подготовку обучающихся в виде практики. Содержание программ практик свидетельствует об их способности сформировать практические навыки обучающихся.

Для разработки образовательной программы были привлечены опытный профессорско-преподавательский состав, ведущие представители работодателя, обучающиеся, учтены их требования при формировании дисциплин профессионального цикла.

Заключение:

В целом, рецензируемая образовательная программа отвечает основным требованиям ГОСО, национальной рамке квалификаций, отраслевой рамке квалификаций, профессиональных стандартов, Атласу новых профессий и способствует формированию общекультурных и профессиональных компетенций по направлению подготовки «6В071-Инженерия и инженерное дело»

Рецензент ассоц.профессор КазНИТУ им.К.И.Сатпаева

Джолдасова К.К.

12. RECOMMENDATION LETTERS

РЕКОМЕНДАТЕЛЬНОЕ ПИСЬМО

от работодателя филиала АО «НК» «КТЖ» - «Алматинское отделение магистральной сети»

Уважаемая Салтанат Нурадиловна

Руководство филиала АО «НК» «КТЖ» - «Алматинское отделение магистральной сети» в лице Жексенбиева А.Т ознакомился с содержанием образовательной программы «7М07162–Иинженерия транспортной инфраструктуры» - включить в содержание образовательной программы дисциплину: Инновационные технологии в транспортном строительстве.

 увеличить количество часов, выделяемых на проведение части лабораторных и практических занятий на базах работодателей с целью формирования определенных видов профессиональных компетенций;

 актуализировать содержание образовательных программ путем включения в цикл базовых и профилирующих модулей дисциплины, отражающие современные инновационные технологии в транспортнокоммуникационной сфере. Предлагается включить следующие дисциплины 1.Диагностика объектов транспортной инфраструктуры;

2. Цифравизация инфраструктуры ;

увеличить количество часов, выделяемых на проведение производственных практик;

включить дисциплины:

- Диагностика объектов транспортной инфраструктуры;

Цифравизация инфраструктуры

Директор филиала АО «НК» «КТЖ» - «Алматинское отделение магистральной ссти

Гил Астри Жексенбиев А.Т. (личная нодпись, дата, МП)

13. REVIEW AND APPROVAL PROTOCOLS

13. Протоколы рассмотрения и утверждения Академия логистики и транспорта

ПРОТОКОЛ №6 (начало формирования ОП) Заседания

Академического комитета по образовательной программе и ведущих преподавателей кафедры «Строительная инженерия»

г. Алматы

«__15__»__03__2023 года

Председатель: Исмагулова С.О. Секретарь: Жадраев Р.Ж.

Присутствовали: члены Академического комитета, ведущие ППС кафедры Представители с производства:

Обучающиеся: Серікбай А

ПОВЕСТКА ДНЯ:

5. Рассмотрение компетентностной модели выпускника

6. Рассмотрение возможности включения дисциплин в КЭД и РУП По первому вопросу

ВЫСТУПИЛ(а):

Зав. кафедрой Исмагулова С.О. предложиларассмотреть компетентностную модель выпускника по 3 уровням образования: бакалавриат, магистратура, докторантура. Компетентностная модель выпускника включает в себя следующие части:

- - Цель и задачи образовательной программы;
 - Результаты обучения;
 - Область, объекты, виды и функции профессиональной деятельности;
 - Перечень должностей по образовательной программе;

Профессиональные сертификаты, полученные по окончании

обучения;

Требования к предшествующему уровню образования.

ВЫСТУПИЛ: Директор филиала АО «НК» «КТЖ» -«Алматинское отделение магистральной сети» -Жексенбиев А.Т., который предложил в силу специфики их организации отразить в объектах профессиональной деятельности следующее: Современные инновационные технологии в транспортно-коммуникационной сфере.

выступил:

Член кафелры Алимкулов М.М., который предложил утвердить

После рассмотрения компетентностной модели выпускника было предложено утвердить

данную Модель по 3 уровням образования. постановили:

 предоставить компетентностную модель выпускника по 3 уровням образования: бакалаврнат, магистратура, докторантура для рассмотрения и утверждения на Совете института «Транспортная инженерия». По второму вопросу

ВЫСТУПИЛ(а): зав кафедрой Исмагулова С.О. с предложением заслушать представителей работодателей и обучающихсяпо включению новых дисциплин в КЭД и РУП приема 2023г.

выступил: представитель работодателей Начальник «Алматинской дистации пути» -Амиров Д.Г.

Организации заинтересованы в специалистах, имеющих хороший уровень подготовки и знаний в области <u>проектирования и строительство железных дорог</u>. Вносим предложения о внесении в РУП следующих востребованных дисциплин: Диагностика объектов транспортной инфраструктуры; Цифравизация инфраструктуры

ВЫСТУПИЛ: обучающийся Серікбай А

Считаем необходимым включить в РУП следующие дисциплины: Диагностика объектов транспортной инфраструктуры; Цифравизация инфраструктуры

постановили:

1. Информацию принять к сведению;

- 2. Учесть предложения и рекомендации работодателей и обучающихся;
- Рассмотреть включение в РУП следующие дисциплины: Диагностика объектов транспортной инфраструктуры; Цифравизация инфраструктуры

Председатель:

Исмагулова С.О.

Секретарь:

Жадраев Р.Ж.

Академия логистики и транспорта ПРОТОКОЛ №7 (перед утверждением ОП на УС)

Заседания КОК УМБ института «Транспортная инженерия»

г. Алматы

«15 » марта 2023 года

Председатель: Чигамбаев Т.О. Секретарь: Утепова А.

Присутствовали: члены КОК УМБ, члены Академического комитета Представители с производства: Директор филиала АО «НК» «КТЖ» - «Алматинское отделение магистральной сети» -Жексенбиев А.Т, начальник отдела пути -Нурболат Р.В.

Обучающиеся: Канназарова А

ПОВЕСТКА ДНЯ:

 Рассмотрение Каталога элективных дисциплин (КЭД), Рабочей учебной программы (РУП), паспорта образовательных программ бакалавриата, магистратуры и докторантуры.

ВЫСТУПИЛ(а): зав. кафедрой <u>Исмагулова С.О.</u> представил (а) на рассмотрение КЭД, РУП бакалавриата, магистратуры и докторантуры.

На кафедре «Строительная инженерия» было проведено заседание с привлечением представителей работодателей и обучающихся по обсуждению структуры и содержанию образовательной программы «7М07162-Иинженерия транспортной инфраструктуры» Представителями работодателей и обучающимися были предложены ряд новых актуальных дисциплин, которые кафедра одобрила и включила в новые КЭД и РУП.

постановили:

- 1. Информацию принять к сведению;
- Учесть все предложения и рекомендации работодателей, представителей студенческого актива;
- Представить КЭД, РУП и ОП бакалавриата, магистратуры и докторантуры для рассмотрения и утверждения на Совете института, УС Академии.

Председатель КОК УМ

Секретарь

7 Чигамбаев Т.О.

Утепова А.

14. APPROVAL SHEET

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15. CHANGE REGISTRATION SHEET

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				Date	Surname and initials, signature, position