

**JSC "ALT University named after Mukhamedzhan Tynyshpaev"**



**APPROVE**

Chairman of the ALT AC

M. Zharmagambetova

Decision of the Academic Council of ALT

«30» 05 2025 year (protocol №10)

**THE PROGRAM  
OF THE ENTRANCE EXAM TO THE DOCTORAL PROGRAM**

**Group of Educational Programs:  
D310 – Transport Structures**

**Almaty 2025**

**The program of the entrance exam** was discussed and received a positive decision at the meeting of the Department of «Architectural and construction engineering», Protocol No.10 of «12» June, 2025.

**Head of the Department**

«Architectural and construction engineering»



**K.S. Kulmanov**

**The program of the entrance exam** was reviewed and recommended at the meeting of the Council of the Institute of «Transport Engineering», Protocol No 6 of 23 June, 2025.

**Chairman of the CI**

«Transport and construction»



**Sh.A. Abdreshov**

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## 1. The purpose of the entrance exam for a group of educational programs

The purpose of the entrance exam for groups of educational programs is to determine the theoretical and practical readiness of the applicant for doctoral studies, the level of compliance of knowledge, skills and abilities with the requirements of doctoral studies in the field of training.

The entrance exam for doctoral studies consists of writing an essay, passing a test for readiness to study in doctoral studies and an exam on the profile of a group of educational programs.

## 2. Regulations for conducting the entrance exam for doctoral studies in a group of educational programs

The duration of the entrance exam is 3 hours 30 min, during which the applicant is interviewed, writes an essay, passes a test for readiness to study in doctoral studies, answers an electronic examination ticket consisting of 3 questions. The list of questions and the topic of the essay are formed in random order. The maximum score for the entrance exam is 100 points, of which the interview is 30 points, the essay is 20 points, the State Educational Program (SEP) profile exam is 50 points.

## 3. Types and evaluation criteria

### 3.1 Essay evaluation criteria

Виды эссе	Описание	Объем эссе
Мотивационное	Аргументация поступающего о побудительных мотивах к научно-исследовательской деятельности (research statement)	Не менее 250 слов
Научно-аналитическое	Обоснование поступающим актуальности и методологии предполагаемого исследования (research proposal)	
Проблемно-тематическое	Изложения авторской позиции по актуальным аспектам предметного знания	

### Essay evaluation criteria

Criteria	Descriptors	Scores
Depth of disclosure of the topic	the problem is disclosed at the theoretical level, with the correct use of scientific terms and concepts	4
	the author presents his own point of view (position, attitude) when revealing the problem	4
Accuracy of the argumentation	the presence of arguments from scientific literature and sources	



Compositional integrity and logic of presentation <b>2 points</b>	the presence of compositional integrity, the structural components of the essay are logically connected	4
Speech culture <b>2 points</b>	demonstration of a high level of academic writing (vocabulary, knowledge of scientific terminology, grammar, stylistics)	4
	<b>Maximum number of points</b>	<b>20</b>

### 3.2 Criteria for evaluating the answers to the questions of the electronic examination card

The exam on the profile of the group of educational programs includes 3 blocks of questions, of which: the 1st question determines the level and consistency of theoretical knowledge; the 2nd question reveals the degree of formation of functional competencies; the 3rd question is aimed at determining systemic competencies. The maximum number of points is 50.

The electronic examination ticket consists of 3 questions:

<b>Blocks</b>	<b>The nature of the question</b>	<b>Number of points</b>
1st question	theoretical – determines the level and consistency of theoretical knowledge	10
2nd question	practical – reveals the degree of formation of functional competencies (the ability to apply techniques, technologies and techniques in the subject area)	20
3rd question	reveals a systematic understanding of the subject area under study, specialized knowledge in the field of research methodology (system competencies)	20
<b>TOTAL</b>		<b>50</b>

Criteria for evaluating the answers to the questions of the electronic examination card:

<b>Question</b>	<b>Evaluation criteria</b>	<b>Number of points</b>
1st question	demonstrates knowledge of the main processes of the studied subject area; the depth and completeness of the disclosure of the issue	5
	logically and consistently expresses his own opinion on the issue under discussion	3
	has a conceptual and categorical apparatus, scientific terminology	2
	<b>Total</b>	<b>10</b>
2nd question	applies methods, techniques, technologies to solve problems in the subject area	7
	argues, compares, classifies phenomena, events, processes; draws conclusions and generalizations based on practical skills	7
	analyzes information from various sources	6



	<b>Total</b>	<b>20</b>
3rd question	критически анализирует и оценивает теоретические и практические разработки, научные концепции и современные тенденции развития науки	7
	синтезирует методологические подходы в интерпретации основных проблем предметного знания	7
	выявляет причинно-следственные связи при анализе процессов, явлений, событий	6
	<b>Total</b>	<b>20</b>
	<b>IN TOTAL</b>	<b>50 points</b>

### 3.3 Interview evaluation criteria

№	Criteria	Descriptors	Scores
1.	Motivation	Argumentation of motives for studying for a doctoral degree in a selected OP and admission to a certain university. Vision of the prospects for professional and personal growth upon completion of training.	5
2	Research competence	Possession of research skills and experience necessary for research activities in a specific subject area.	10
3.	Creativity	Non-standard thinking, creative and alternative approaches to solving problems, situational tasks.	10
4.	Communicativeness	The ability to briefly, representatively, logically, argumentatively state your point of view, make generalizations and conclusions. Language proficiency.	5
<b>Maximum number of points</b>			<b>30</b>

### 4. Content of examination materials

№	Темы эссе
1	Requirements for bridges and pipes.
2	Characteristics of standard and unified superstructures.
3	Features of bridge spans of arched, frame and combined systems.
4	Materials used for metal bridges.
5	Construction of collapsible superstructures.



6	Accounting for stormwater accumulation in front of small bridges and pipes
7	Ensuring the safety of train traffic in the track economy
8	Areas of application of standard roadbed projects.
9	Constructions of transport structures.
10	Operation of bridges and pipes on railways.

№	Name of disciplines
1	Scientific research methods
2	Diagnostics and testing of transport facilities
3	Inspection and testing of transport facilities
4	Research of scientific experiments
5	Study of the stress-strain state of transport structures
6	Development of new structures and structural elements of transport facilities

#### **4.2 The content of sections by blocks submitted for the entrance exam**

Examination materials for the entrance exams to the doctoral program for groups of educational programs, including the subject of essays, examination questions on the profile are made in three languages: Kazakh, Russian and English.

The topics of the examination questions correspond to the selected sections from the curricula of the cycles provided for by the groups of educational programs « **D310- Transport facilities** »:

#### **4.3 The content of sections by blocks submitted for the entrance exam**

##### **Block 1**

1. Scientific research methods
2. Diagnostics and testing of transport facilities
3. Inspection and testing of transport facilities
4. Research of scientific experiments
5. Study of the stress-strain state of transport structures
6. Development of new structures and structural elements of transport facilities

##### **Block 2**

1. Scientific research methods
2. Diagnostics and testing of transport facilities
3. Inspection and testing of transport facilities
4. Research of scientific experiments
5. Study of the stress-strain state of transport structures
6. Development of new structures and structural elements of transport facilities



### **Block 3**

1. Scientific research methods
2. Diagnostics and testing of transport facilities
3. Inspection and testing of transport facilities
4. Research of scientific experiments
5. Study of the stress-strain state of transport structures
6. Development of new structures and structural elements of transport facilities

#### **4.4 Content of interview questions**

1. Scientific research methods
2. Diagnostics and testing of transport facilities
3. Inspection and testing of transport facilities
4. Research of scientific experiments
5. Study of the stress-strain state of transport structures
6. Development of new structures and structural elements of transport facilities

### **5. Recommended literature**

#### **5.1 Basic literature**

1. Цытович Н.А. Механика грунтов. – Москва: Изд-во «Либроком», 2013. – 272 с.
2. Унайбаев Б.Ж., Арсенин В.А., Марденов Ж.А. и др. Фундаментостроение на засоленных грунтах. – Екибастуз : ЕИТИ, 2012. – 184 с.
3. Бокарев, С.А Содержание искусственных сооружений с использованием информационных технологий. учебное пособие / С.А. Бокарев, С.С. Прибытков, А.Н. Яшнов.- М.: УМЦ по образованию на ж/д транспорте, 2008.- 195с.- (Высшее профессиональное образование).
4. Г.М. Боровик. Учебник. Искусственные сооружения на железных дорогах. Хабаровск. 2013г. Изд. ДВГУПС

#### **5.2 Additional literature**

1. Основы технической эксплуатации транспортной техники: учебник для студентов, магистрантов и докторантов / С. Ж. Кабикенов [и др.]. - Алматы : Эверо, 2018. - 311 с.
2. Основы технической эксплуатации транспортной техники/С.Ж. Кабикенов, М.М. Кириевский, В.В.Шалаев; Карагандинский государственный технический университет. Караганда: Издательство КарГТУ, 2014. -261 с.
3. Көлік техникасын техникалық пайдалану негіздері. Оқу құралы/Копенов Б.Т. – Алматы, 2011. – 110 с.
4. НТД «Правила по устройству и содержанию искусственных сооружений на железнодорожном транспорте Республики Казахстан». 2015г. № 1288. Хасенов С.С., Квашнин М.Я., Абиев Б.А., Бондарь И.С.
5. Кадыров А.С. Основы научных исследований. Монография / А.С. Кадыров, И.А. Кадырова. — Караганда: Изд-во КарГТУ, 2015.