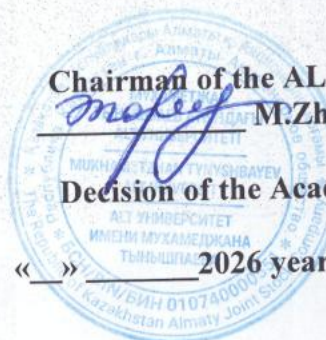


JSC « ALT Mukhametzhan Tynyshbayev University»

APPROVE
Chairman of the ALT University AC

M. Zharmagambetova
Decision of the Academic Council of
ALT University
«__» **2026** year (protocol № __)



THE PROGRAM
OF THE ENTRANCE EXAM TO THE DOCTORAL PROGRAM
direction by profile

Group of educational programs: «D104 Transport, transport equipment and technologies»

Educational program: «8D07166 Transport, transport equipment and technologies»

Almaty 2026

The program of the entrance examination was discussed and received a positive decision at the meeting of the department «Motor Vehicles and Life Safety», Protocol No.7, 11th of March, 2026.

Head of the Department
«Motor Vehicles and Life Safety»



A.E. Toilybayev

The program of the entrance examination was discussed and received a positive decision at the meeting of the Department of «Rolling Stock», Protocol No. 7, 13th of March, 2026.

Head of the Department
« Rolling Stock »



G.K. Ashirbayev

The program of the entrance exam was reviewed and recommended at the meeting of the Council of the Institute of «Transport and construction», Protocol No.5, 17th of March, 2026.

Chairman of the CI
«Transport and construction»



N.Z. Suleyeva

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1. PURPOSE OF THE ENTRANCE EXAM

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

The PhD Doctoral Entrance Examination consists of the following blocks:

- 1) interview with the applicant, conducted by the examination committee;
- 2) answers to examination questions on the profile of the educational program group;
- 3) the presence of a letter of recommendation from an enterprise or organization.

2. FORMAT AND PROCEDURE FOR THE ENTRANCE EXAMINATION

The duration of the entrance exam is 2 hours 30 minutes, during which the applicant is interviewed, answers an electronic examination ticket consisting of 3 questions. The list of questions and are formed in a random order. The maximum score for the entrance exam is 80 points, the GOP profile exam is 50 points, the interview is 30 points.

3. TYPES AND EVALUATION CRITERIA

3.1 Criteria for Evaluation of Answers to Electronic Examination Ticket Questions

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:

Blocks	The nature of the question	Number of points
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
TOTAL		50

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

Question	Evaluation criteria	Number of points
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
	Total	10
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
	Total	20
3rd question	critically analyzes and evaluates theoretical and practical developments, scientific concepts and current trends in the development of science	7
	synthesizes methodological approaches in the interpretation of the main problems of subject knowledge	7
	identifies causal relationships in the analysis of processes, phenomena, events	6
	Total	20
	IN TOTAL	50 points

3.2 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.	6
3.	Creativity	Non-standard thinking, creative and alternative approaches to solving problems, situational tasks.	5
4.	Communicativeness	The ability to briefly, representatively, logically, argumentatively state your point of view, make generalizations and conclusions. Language proficiency.	4
Maximum number of points			20

3.3 Letter of recommendation from enterprise and organization

For admission to doctoral studies in the profile, a letter of recommendation from an enterprise or organization must be drawn up on an official form, contain specifics and confirm the company's interest in training.

4. CONTENT OF EXAMINATION MATERIALS

4.1 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 «**D104 – Transport, transport equipment and technologies**»:

№	Name of disciplines
1	Modern railway rolling stock
2	Promising types of motor vehicles
3	Promising types of working bodies of road construction and track machines
4	Interaction of track and rolling stock
5	Design, calculation of road construction machines and cars
6	Methodology and methods of scientific research

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

Block 1

1. Modern railway rolling stock
2. Promising types of motor vehicles
3. Promising types of working bodies of road construction and track machines
4. Interaction of track and rolling stock
5. Design, calculation of road construction machines and cars
6. Methodology and methods of scientific research

Block 2

1. Modern railway rolling stock
2. Promising types of motor vehicles
3. Promising types of working bodies of road construction and track machines
4. Interaction of track and rolling stock
5. Design, calculation of road construction machines and cars
6. Methodology and methods of scientific research

Block 3

1. Modern railway rolling stock
2. Promising types of motor vehicles
3. Promising types of working bodies of road construction and track machines
4. Interaction of track and rolling stock
5. Design, calculation of road construction machines and cars
6. Methodology and methods of scientific research

4.3 Content of interview questions

1. Procedure for experimental tests of operational reliability of freight cars.
2. Methods of experimental tests of operational reliability of passenger and high-speed cars.
3. Reliability and operational safety of railway rolling stock.
4. The main operational indicators of enterprises for the maintenance and repair of wagons and locomotives.
5. Management of rolling stock service in railway transport.
6. Modern rolling stock of non-CIS countries.
7. Modern methods for assessing the operational reliability of road-building and track machines.
8. Maintenance of road and construction machines and prospects for the development of the maintenance and repair system.
9. Basic concepts of reliability in the operation of transport equipment and ways to improve reliability.
10. Prospects for the development of motor vehicles, taking into account the automation and development of artificial intelligence systems.
11. Modern methods for diagnosing the technical condition of freight and passenger cars.
12. Improving the operational reliability of rolling stock based on digital monitoring technologies.
13. Organization of maintenance and repair of railway rolling stock in modern conditions.
14. Methods for predicting the residual resource of elements of railway rolling stock.
15. Intelligent control systems for the technical condition of transport equipment.
16. Assessment of the efficiency of service maintenance of locomotives and wagons using digital technologies.
17. Promising technologies for maintenance of road-building and track machines.
18. Modern approaches to ensuring the reliability and safety of vehicles.
19. Automation of technical diagnostics and repair of transport equipment.
20. Development of artificial intelligence technologies in the life cycle management of vehicles and railway rolling stock.
21. Factors affecting fuel consumption of transport equipment
22. Principles of determination of influencing factors on vehicle stability
23. Main factors affecting braking performance of motor vehicles
24. Principles of compiling a design scheme for determining the forces acting on vehicles in corners.
25. Various factors affecting vehicle handling.

5. RECOMMENDED LITERATURE

5.1 Basic literature

1. Кадыров А.С. Основы научных исследований. Монография / А.С. Кадыров, И.А. Кадырова. — Караганда: Изд-во КарГТУ, 2015.
2. Методы обеспечения работоспособного технического состояния автотранспортных средств: Учебник / С.М. Мороз. — М.: МАДИ, 2015.
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4. Солоненко В.Г. и др. Грузовые и пассажирские вагоны: Учебник для ВУЗов ж.д. транспорта. — Алматы: Эверо, 2012.
5. Куанышев Б.М, Абдуллаев С.С., Бакыт Г.Б. Тепловоз ТЭ33А производства АО «Локомотив құрастыру зауыты»: Учебное пособие. — Алматы: КазАТК, 2015.
6. Мусаев Ж.С. Высокоскоростной подвижной состав: Учебное пособие. — Алматы: Эверо, 2012.
7. Баубеков Е.Е. Технологическое проектирование предприятий автомобильного транспорта: учебное пособие. — Алматы: КазАТК, 2020. — 193 с.
8. Таран М.В., Кульгильдинов М.С. и др. Транспорт и транспортная техника: Учебно-методическое пособие. — Алматы: КазАТК, 2014.
9. Мусаев Ж.С., Нурмамбетов С.М., Ивановцева Н.В., Бекмамбет К.М. Динамика транспортной техники: Учебник. — Алматы: КазАТК, 2014.
10. Надежность транспортной техники: учебник / Под ред. Ж.О.Кульсеитова. — Алматы: Ассоциация вузов РК, 2012.
11. Баубеков Е.Е. Техническая эксплуатация автомобилей: учебное пособие — Алматы: КазАТК, 2020. — 120 с.
12. Энергетические установки транспортной техники: справочное пособие / М.О. Мусабеков, Г.Б. Бакыт, А.М. Өмірбек. — Алматы: КазАТК, 2018.

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.
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7. Мелисаров, В.М. Тепловой расчёт и тепловой баланс карбюраторного двигателя и двигателя с впрыском топлива: учебное пособие / В.М. Мелисаров, П.П. Беспалько, М.А. Каменская. — Тамбов : Изд-во Тамб. гос. техн. ун-та, 2009.
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