

NON-PROFIT JOINT-STOCK COMPANY
«KARAGANDA TECHNICAL UNIVERSITY NAMED AFTER ABYLKAS
SAGINOV»

Scientific and Methodological Council
protocol No 5

« 18 » 2026 year



**THE PROGRAM OF THE ENTRANCE EXAM FOR APPLICANTS TO
DOCTORAL STUDIES IN EDUCATIONAL PROGRAM
8D07102 "Transport, transport equipment and technologies"**

Department: " Transport equipment and logistics systems "

Compiled by:

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The program of the entrance examination for the educational program 8D07102 "Transport, transport equipment and technologies" was developed by:

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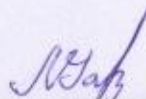
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Discussed at a meeting of the Department of Transport Technology and Logistics Systems

Protocol No. 13 of 06.02., 2026

Head of the TE and LS Department



(signature)

Zharkenov N.B.

Main topics covered in entrance exams

1. Technical operation of transport equipment

1.1. List of topics.

- Organization of maintenance and repairs
- Performance of transport equipment and its provision
- Performance indicators and coefficients
- Diagnostics of technical systems
- Modeling in diagnostics

1.2. Literature

1. Fundamentals of technical operation of transport techniques / S.Zh. Kabikenov, T.S. Intykov, M.M. Kirievsky, V.V. Shalaev; Karaganda State Technical University. - Karaganda.: Publishing house of KarSTU. 2015.-261 p.

2. Fundamentals of technical operation of transport technology / S.Zh. Kabikenov, T.S. Intykov, M.M. Kirievsky, V.V. Shalaev; -Almaty: Evero Publishing House. 2018.- 312 p.

3. Kuznetsov E.S. Technical operation of cars: Textbook for universities. 4th ed. revised and supplemented / E.S. Kuznetsov, A.P. Boldin, V.M. Vlasov et al. – M: Science. 2001. - 535 p.

4. Optimization and management during technical operation of vehicles. / Zh.A. Aliyev Zh.A., S.Zh. Kabikenov, M.M. Kirievsky: Textbook: - Karaganda: KarSTU, 2000. - 210 p.

2. Evaluation and forecasting indicators reliability of transport equipment

2.1. List of topics.

- Basic concepts, parameters and evaluation methods
- Reliability Prediction: Design, Production, Operation
- Failure models and reliability improvement methods
- Wear processes and types of friction
- Factors Affecting Wear
- Mechanical interaction of working surfaces
- Lubricant materials. Processes and mechanisms of action of lubricants

2.2 Literature:

1. Shishmarev V.Yu. Reliability of technical systems. - M.: Publishing Center "Academy", 2010. - 271 p.

2. Zorin V.A. Fundamentals of performance of technical systems: textbook for students of higher educational institutions. – M.: Publishing center "Academy", 2009.- 208 p.

3. Reliability assessment of technical systems: textbook / A.S. Shirshchikov, V.V. Lyandenburgsky, A.M. Belokovylsky. - Penza: PSUAS, 2015. - 240 p.

4. Ludchenko A.A., Ludchenko Ya.A., Primak T.A. Fundamentals of scientific research: Textbook / Ed. A.A. Ludchenko. - 2nd ed., reprinted - K.: Ovo "Knowledge", KOO, 2001. - 113 p.

5. Belyaev N.I., Zaitsev A.N. Tribology: friction, wear and lubrication. — St. Petersburg: Lan, 2015. — 376 p.

6. Klyuev M.S. Automobile operating materials. - M.: Transport, 2001. - 286 p.

3. Organization of scientific research

3.1. List of topics.

- Fundamentals of scientific knowledge
- Research methods
- Analysis and modeling
- Planning and conducting an experiment
- Presentation of results, graphical and mathematical analysis

3.2. Literature:

1. Fundamentals of Scientific Research: Textbook / V. M. Kozhukhar. - M.: Publishing and Trading Corporation "Dashkov and Co.", 2010. - 216 p.
2. Fundamentals of Scientific Research: Textbook / A.S. Kadyrov. - Karaganda: Sanat Polygraphy, 2020. - 147 p.
3. Fundamentals of scientific research:textbook / F.V. Grechnikov, V.R. Kargin. - Samara: Publ.in SSAU, 2015. – 111 p.

**List of topicsessay on educational program
8D07102- "Transport, transport equipment and technologies"**

No.	Essay Topics (Russian language))
1	Intelligent Transportation Systems: Trends and Development Prospects
2	Electrification of Vehicles: Challenges and Opportunities for Kazakhstan
3	Sustainable Development of the Transportation System under Urbanization
4	Innovative Materials and Technologies in Transport Equipment Manufacturing
5	Transport of the Future: Autonomous and Driverless Vehicles
6	Development of Transport and Logistics Hubs and Corridors within the Silk Road Initiative
7	Energy Efficiency and Environmental Safety of Transport Equipment
8	Digital Transformation of the Transport Sector
9	Application of Additive Technologies in Transport Equipment Repair
10	Intelligent Technologies for Fleet Maintenance Management