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«KARAGANDA TECHNICAL UNIVERSITY NAMED AFTER ABYLKAS
SAGINOV»

Scientific and Methodological Council
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**THE PROGRAM OF THE ENTRANCE EXAM FOR APPLICANTS TO
DOCTORAL STUDIES IN EDUCATIONAL PROGRAM
8D07107 «Innovations in Transport»**

Department: "Transport equipment and logistics systems "
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The program of the entrance examination for the educational program 8D07107 «Innovations in Transport» was developed by:

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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
- Lubricants 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.