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«KARAGANDA TECHNICAL UNIVERSITY NAMED AFTER ABYLKAS
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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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Discussed at a meeting of the Department of Transport Technology and Logistics Systems

Protocol No. 15 of March 28, 2025

Head of the TE and LS Department _____ Zharkenov N.B.
(signature)

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.

