

Review paper

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The Donetsk Railway Transport Institute: yesterday, today, tomorrow

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Обзорная статья

Донецкий институт железнодорожного транспорта: вчера, сегодня, завтра

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INTRODUCTION

The Donetsk Railway Transport Institute (DonIZhT) was founded on 3 November 1967 as a training and consulting centre of the Kharkov Institute of Railway Engineers (Order of the USSR Minister of Railways No. E-29415). On 1 January 1968, in order to improve the quality of training of engineers for Donetsk Railways, the training and consulting centre was transformed into the Donetsk Branch of the Kharkov Institute of Railway Engineers.

The Donetsk Railway Transport Institute owes its creation to high levels of freight traffic and shortage of staff on Donetsk Railways. Executives of the Ministry of Transport of the USSR tried to resolve the shortage of engineering personnel through a distance learning system, where more than a thousand employees of

Donetsk Railways and transport departments of industrial enterprises studied by correspondence in railway transport institutes and at technical faculties of other higher education institutions. However, at that time higher education institutions had limited capabilities and the implementation of educational programmes was complicated because of their remoteness from where distance students resided. This inspired the management of Donetsk Railways to establish the Donetsk branch of the Kharkov Institute of Railway Engineers — the idea was supported by the Head of Donetsk Railways Viktor Priklonsky. Chief executives of Donetsk Railways proposed to appoint the Head of Engineering Works of the Permanent Way Department of their Railway Administration Nikolai M. Tseluyevsky as Director of the Branch and M.P. Gavrichkov was appointed Deputy Director for Academic Work.

All of the key functions and departments of Donetsk Railways were assigned to provide practical support to the Branch in creating laboratories and study rooms. Thus, the Wagon Service Department of the Railway Administration created a study room for analytical mechanics; the Electrification and Power Utilities Department set up an electrical engineering laboratory; the Signalling and Communications Department organized a laboratory of physics, linear electrical circuits, signalling and communications; and the Medical and Sanitary Department equipped a chemistry laboratory. The Permanent Way, Locomotive Facilities and Logistics Departments provided invaluable assistance to the Branch, too.

In 1971, the Branch began to carry out contract-based research and development projects. It has completed an R&D project to design and build a set of programmes for calculating technical standards for the operational work of Donetsk Railways and its departments with the use of ES EVM computers. The outcome of this effort was put into practice in 1984–1986. The Branch has also developed an installation and technology for build-up welding of frogs in a pulsed magnetic field. The technology was used to restore about 200 frogs on heavy traffic lines of Donetsk Railways. The wear resistance of the restored frogs turned out to be 1.3 times higher than that of the existing ones.

Early in its history, the Institute only had distance students. Intramural training of engineers at the Donetsk Branch of the Kharkov Institute of Railway Engineers was launched in 1991. Daytime studies were made possible thanks to major preparation efforts made by academic and administrative staff of the Branch with the support of academic departments of the Institute and functions of Donetsk Railways.

In 1996, the Donetsk Branch acquired the status of an institute as a division of the Kharkov State Academy of Railway Transport. Highly intense competition for enrolment in the first year of studies showed that young people of Donbass were ready to cast their lot with railway transport. In the early 2000s, the Donetsk Railway Transport Institute ranked third in terms of the number of candidates competing for enrolment among 18 state higher education institutions in the region.

The Institute built and improved its structure. In general, it has taken a form that is standard for universities with level 3 and 4 accreditation. The Institute's first daytime faculty was named "Railway Transport Management". Two other faculties, Railway Transport Infrastructure and Economics of Transport, were formed out of it in 1998 and 2001, respectively. The Faculty of Extramural Studies managed the training process for distance students, as it did during the early years of the Branch.

1998 saw change in the executive team of the Institute. Professor Vladimir I. Poddubnyak, PhD in Engineering, who earlier served as Vice-Rector for Aca-

demic Affairs, became Rector of the Donetsk Railway Transport Institute.

In 1998, the Advanced Training Faculty was established, and its facilities were used for the operation of an expertise centre for occupational health and safety of the Ministry of Transport.

The success of the Institute's team in achieving its goals was recognized by Order of the Cabinet of Ministers of Ukraine No. 575r dated 11 October 2002 "On the Establishment of the Donetsk Railway Transport Institute of the Ukrainian State Academy of Railway Transport", which instituted it as a state higher educational institution with the rights of a legal entity. This formed a basis for subsequent Order of the Ministry of Transport of Ukraine No. 807 dated 12 November 2002.

In accordance with the Decree of the Council of Ministers of the Donetsk People's Republic No. 35-10 dated 26 September 2014, the Institute was moved under the control of the Ministry of Education and Science of the Donetsk People's Republic.

Order of the Government of the Russian Federation No. 750-r dated 29 March 2023 established federal ownership of the Russian Federation over the Donetsk Railway Transport Institute in the form of state budgetary educational institution of higher education.

As of 2023, the Institute has two faculties, one branch for secondary vocational education, and the Continuing Education Centre.

MISSION OF THE DONETSK RAILWAY TRANSPORT INSTITUTE

The Donetsk Railway Transport Institute is the leading educational institution in the field of transport in the region, engaged in both academic and research activities. The Institute provides training in higher education (bachelor's, specialist's, master's, and postgraduate programmes) in 13 specialties (areas of training); in secondary vocational education (training programmes for mid-level specialists) in 5 specialties; and in vocational training and additional education programmes.

One of the key success factors of the Donetsk Railway Transport Institute is its close cooperation with the leading employer in the region's transport industry, Railways of Novorossiysk Federal State Unitary Enterprise. Through this cooperation the Institute is aware of current requirements and trends in the industry and can provide its students with opportunities for practical training and further employment. The Institute also serves as a forum for meaningful interactions with authorities, business, science and education communities by hosting scientific conferences and contributing to the development of expertise programmes for the development of the transport industry in the Donetsk People's Republic.



The high quality of training of engineers provided by the Donetsk Railway Transport Institute is attested by the fact that its graduates are highly sought after on the labour market. Many graduates begin their career on the Donetsk railways and other regional railways, as well as at industrial transport enterprises. This shows the confidence placed in the Institute by employers and supports its reputation as a provider of highly skilled professionals.

Results of R&D activities undertaken by the Institute's academic departments, and materials of dissertation research performed by postgraduate and doctoral students are actively introduced in the training process and used to create simulators and benches for laboratory and hands-on classes.

The main areas of R&D activities at the Donetsk Railway Transport Institute include:

1. Development of control systems for railway transport using artificial intelligence methods and tools.
2. Improvement of the technology for laying continuous welded track and structural components of the track superstructure.
3. Managing operation of transport systems and transport and logistics systems, and optimization of their certain elements.
4. Feasibility evaluation and development of compact cooling systems with high heat dissipation capacity for power equipment of traction rolling stock.
5. Development of new aerodynamic designs and configurations for energy-efficient axial motor fans for cooling devices in diesel locomotives.

The Institute's strategic goal for the period until 2030 is to achieve the status of a higher educational institution that makes a major theoretical and practical contribution to the innovative development and overall competitiveness of the transport industry of the Russian Federation. The development of the Donetsk Railway Transport Institute is aimed at catering for the needs of Railways of Novorossiia for competent em-

ployees with higher and secondary vocational education. The Institute keeps an eye on the latest trends and progress in the field of transport and provides its students with up-to-date knowledge and skills to enable them to build a successful career in the dynamic transport industry. The Donetsk Railway Transport Institute strives to provide the transport industry with highly skilled professionals by making available an optimal environment for training, retraining and advanced training. Moreover, the Donetsk Railway Transport Institute engages in research and development with the view to improve the performance and competitiveness of railway companies.

To achieve its goal, the Institute pursues a number of objectives. The measures taken by the Institute to improve the efficiency of its educational activities involve the introduction of educational innovations at all levels and for all types of education. This approach will help establish a more interactive and attractive learning environment where students can be actively involved in the educational process. It also plans to digitalize all the processes at all decision-making levels, automate administrative tasks, and improve communications between participants of the educational process. One of the priority objectives is to implement systemic update and modernization of the educational simulators, educational laboratory equipment, and laboratory facilities used in R&D activities. This will help improve the practical focus and effectiveness of R&D activities, expand the areas of research work and the range of scientific services, and make them more relevant.

The Institute develops special programmes and activities designed to reveal and develop talents among students. It offers an environment for successful study and professional growth of gifted students. It is planned to provide special training for graduates to support them in undergoing the assessment of corporate and professional competencies at Russian Railways OJSC. This will increase competitiveness of graduates from

the Donetsk Railway Transport Institute and enable them to successfully complete any evaluation of their knowledge and skills.

It is planned to implement comprehensive activities to develop scientific potential, create favourable conditions for R&D efforts, actively support scientific projects and programmes, and attract highly skilled scholars and experienced professionals for cooperation and exchange of experience.

The Donetsk Railway Transport Institute continuously adapts the range of its educational services to meet changing needs of the labour market in the industry and economy of the region at all levels and for all types of education. The Institute works to ensure that the qualification of its teaching staff, educators, researchers, administrators, managerial and support staff is confirmed and upgraded in a systematic and timely fashion.

One of the important areas of focus in the Donetsk Railway Transport Institute is not only to develop students' professional skills but also to contribute to their personal qualities, create an educational environment that promotes the development of their general cultural and professional competencies, patriotic awareness, and social activism. The Institute intends to invite outstanding scholars and experienced practical workers to join its educational activities. This will give students opportunities for learning knowledge and experience from cutting-edge industry representatives and expanding the range of their professional contacts and career prospects.

In order to contribute to the social and economic development of the Donetsk People's Republic, the Donetsk Railway Transport Institute engages in activities in the following areas:

1. Building effective partnerships with local schools with the view to establish a system of profession-oriented education in the region: facilitation of information transparency of the student enrolment process, presentation of new, practice-oriented educational programmes, and promotion of employment practices at promising enterprises and strategic sites for graduates from the Donetsk Railway Transport Institute. Company-sponsored education and involvement of employers and regional executive authorities in career guidance counselling are important factors of the project success. Career guidance counselling in schools, vocational schools and colleges, including information meetings, profession-specific classes, meetings with key partners of the Donetsk Railway Transport Institute, dissemination of information materials with a focus on relevant areas — all these are important for the creation of a successful system of profession-oriented education.

2. Modern requirements and challenges in various sectors of the economy require that the content of the



Students at classes in the laboratory of the Railway Rolling Stock Department. Training simulator: High-voltage cabinet and control console of 2TE116 diesel locomotive

training programmes offered by the Institute be upgraded and their range be expanded. It is planned to adjust the package of competencies in collaboration with industrial partners, optimize the number of and allocate contact work hours to practical work at enterprises, and to build the training process with a focus on industry-specific courses.

3. Building a system for the involvement of employees of the Donetsk Railway Transport Institute in profession-specific programmes of advanced training for the benefits of companies and enterprises in the Donetsk People's Republic. This will enable the Institute to be abreast of the latest trends and inventions in the industry, better prepare students for meeting the requirements of regional companies and enterprises, and build a more balanced link between education and the labour market.

4. Upgrading of the laboratory facilities in the educational divisions that are involved in the development of key areas of the regional economy, social and cultural sphere in the Donetsk People's Republic is necessary in order to ensure that students develop practical skills in working with modern equipment and technologies that are utilised by important sectors of the industry of the region and to develop their professional skills and train competitive professionals for strategic sites in the Donetsk People's Republic.

Higher education organisations influence the achievement of national development goals of the Russian Federation by acting as key providers of workforce for the economy and implementing research and development projects that contribute to the country's technological development. The Donetsk Railway Transport Institute consistently focuses its areas of activity on the achievement of the national goals and strategic objectives for the development of the Russian Federation.

To achieve these goals and given the capabilities available to the Donetsk Railway Transport Institute, its scientific and academic work will be focused on the

following priorities, which will provide a framework for building links between educational programmes, scientific schools, and the transport sector of the Russian economy:

- opportunities for self-realisation and talent development;
- digital transformation.

The activities of the Donetsk Railway Transport Institute are aimed at solving the following tasks to contribute to the achievement of the national development goals:

1) development of an effective system to discover, support and nurture talents and abilities in children and young people based on the principles of justice and universal access aimed at promoting self-determination and occupational guidance of students; holding of contests, academic competitions, festivals and other activities to discover and support gifted children and young people;

2) creation of conditions for the development of a harmoniously developed and socially responsibility personality on the basis of spiritual and moral values of the Russian Federation, historical and cultural values; conducting educational work to develop patriotism, civic mindedness, and respect for human rights and moral values in students;

3) achievement of digital maturity of education and creation of a modern and safe digital educational environment that will provide high quality and acces-

sibility of education of all types and levels and ensure training of digitally competent workforce;

4) upgrading of professional education by introducing adaptive, practice-oriented and flexible educational programmes designed to train professionals with skills required by the labour market;

5) creation of a system for continuous professional knowledge update and acquisition of new skills by employed individuals, including the development of competencies in digital economy, by providing advanced training and retraining opportunities and developing distance education;

6) creation of an environment for the development of a mentorship system, the support of students' self-governance and youth initiatives, including in the field of volunteering.

CONCLUSION

The mission of the Donetsk Railway Transport Institute is to train highly skilled professionals for work in railway transport. The Institute strives to provide students with high-quality education, develop research, and promote innovation and technology progress in the railway transport sector. It also works to strengthen ties between industry and business so that its graduates can enjoy the best possible employment and career opportunities.

Bionotes

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