

Study programme "Railway Transport"

Main attributes

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| Title | Railway Transport |
| Identification code | MGD0 |
| Education classification code | 47525 |
| Level and type | Professional Master (Second Cycle) Studies |
| Higher education study field | Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering |
| Head of the study field | Marina Čerpinska |
| Department responsible | Faculty of Mechanical Engineering, Transport and Aeronautics |
| Head of the study programme | Mihails Gorobecs |
| Professional classification code | 2149 27 |
| The type of study programme | Full time, Extramural |
| Language | Latvian, English |
| Accreditation | 29.05.2013 - 31.12.2022; Accreditation certificate No 2020/43 |
| Variant 1 | |
| Volume (credit points) | 60.0 |
| Duration of studies (years) | Full time studies - 1,5; Extramural - 2,0 |
| Degree or/and qualification to be obtained | Professional Master Degree in Railway Transport |
| Qualification level to be obtained | The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF) |
| Programme prerequisites | Professional Bachelor Degree and/or 5th Level Professional Qualification in Railway Transport |
| Variant 2 | |
| Volume (credit points) | 120.0 |
| Duration of studies (years) | Full time studies - 3,0; Extramural - 3,5 |
| Degree or/and qualification to be obtained | Professional Master Degree in Railway Transport and Qualification of Engineer in Railway Transport |
| Qualification level to be obtained | The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF); the 7th level of professional qualification |
| Programme prerequisites | Bachelor Degree of Engineering Science in Mechanical Engineering |

Description

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| Abstract | <p>The submitted programme is developed to give to the students with professional Bachelor degree and/or the 5th level of professional qualification in the field of railway transport and academic Bachelor degree in machinery science a possibility to continue studies.</p> <p>The professional study programme of Railway Transport is implemented in three directions. The Institute of Railway Transport implements the studies at the programme.</p> <p>After the first year of studies students have a possibility to choose further studies in one of the following 3 directions:</p> <p>Direction of railway rolling stock with the specializations:</p> <ol style="list-style-type: none"> 1.Railway locomotives; 2.Railway carriages. <p>Direction of railway transportation technology;</p> <p>Direction of rail road and road machines with the specializations:</p> <ol style="list-style-type: none"> 1.Rail road; 2.Road machines. <p>The volume of professional master study programme is 60 credit points with the duration of 1.5 years or 120 credit points with the duration of 3 years in the full-time studies, and 2 or 3.5 years correspondently for the part-time (extra-mural) studies.</p> |
| Aim | For undertaking the studies the professional bachelor degree and/or the 5th level professional qualification or academic bachelor degree is necessary. The aim of the programme is to prepare specialists in the field of railway transport on the international level and for implementation of research work. |

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| Tasks | <p>The general tasks of the professional master study programme "Railway Transport" are:</p> <ul style="list-style-type: none"> - to ensure a competitive education corresponding to master level and international standards in Railway transport area of quality assessment; - to ensure amendments to the content, learning process, research development in line with the changes in the field Railway transport assessment system in international practice, practical science and didactics; - to develop an interest in continuing education and development, further perfection of academic and professional knowledge, doctoral studies, to develop scientific research skills and encourage their practical use; - to stimulate students' interest in social processes, to stimulate students' development as positive, modern, reliable and capable personalities who can act independently, evaluate risks and make autonomous decisions; - to encourage interaction between the academic staff and students in the development of research work and practical use of the research results in accordance with international standards and trends in the field of quality management, to promote and develop academic staff and student exchange and participation in international projects. |
| Learning outcomes | <p>As a result of the studies the following necessary knowledge and qualifications are obtained:</p> <ul style="list-style-type: none"> •in planning and design of the systems of railway transport; •for implementation of scientific work in the field of railway transport; •for implementation of experimental researches in the systems of railway transport and devices. <p>It is also foreseen that this education provides knowledge, that forms the necessary level of culture and intelligence, allowing to begin the social activities, to communicate with field specialists in Latvia and abroad and to continue studies in the doctoral study programme.</p> <p>As a final result students obtain professional Master degree in the field of Railway transport or a qualification of an engineer in Railway transport and professional Master degree in the field of Railway transport.</p> |
| Final/state examination procedure, assessment | <p>Elaboration of the Master Paper is the final stage of professional studies. Master Paper is a research work in the field of railway transport. The purpose of the work is to teach how to aggregate information available, to independently execute necessary research of a new device of railway transport, investigate processes and algorithms. Master Paper with a project foresees a detailed elaboration of the project in the field of railway transport.</p> <p>Master Paper with the project and Master Paper is defended in a public meeting. The paper is valued by a commission consisting of a chairman, secretary and not less than 3 members. The chairman of the examination commission is a leading specialist of correspondent direction of the field of railway transport, but half of the commission are highly qualified specialists of railway transport.</p> |
| Description of the future employment | <p>Graduates of the study programme can work in railway transport companies and organizations as well as in research and educational institutions that develop and maintain systems and processes for railway transport technologies.</p> |
| Special enrollment requirements | <p>Candidate admission to the programme for the state budget-funded places is organized in an open and equal competition, taking into account the average mark after bachelor studies or professional studies.</p> |
| Opportunity to continue studies | <p>It is possible to continue studies in FTME Railway Transport Institute doctoral study programme "Transport" as well as in any other doctor level study programme in other universities in Latvia or abroad.</p> |

Courses

| No | Code | Name | C.p. [1] | C.p. [2] |
|-----------|------------------------|--|-------------|-------------|
| A | | Compulsory Study Courses | 18.0 | 24.0 |
| 1 | EDE572 | Theory of Optimal Solutions | 4.0 | 4.0 |
| 2 | EDE599 | Railway Transport System Analysis | 4.0 | 4.0 |
| 3 | EDR577 | Numerical Methods and Engineering Programs for Transport Tasks | 4.0 | 4.0 |
| 4 | EDR551 | Logistics Basics of the Railway Transport | 3.0 | 3.0 |
| 5 | EDR552 | Calculation of Traction Performance | 3.0 | 3.0 |
| 6 | EDE506 | Object Oriented Programming for Transportation Tasks | | 3.0 |
| 7 | EDR501 | Calculation of Traction Performance (studies project) | | 3.0 |
| B | | Compulsory Elective Study Courses | 12.0 | |
| B1 | | Field-Specific Study Courses | 8.0 | 28.0 |
| | | | 8.0 | 28.0 |
| 1 | EDR575 | Diesel Locomotive Dynamics | 4.0 | 4.0 |
| 2 | EDR578 | Diesel Locomotive Internal Combustion Engine Dynamics | 4.0 | 4.0 |
| 3 | EDR558 | Working Load of Wagon Parts | 4.0 | 4.0 |
| 4 | EDR579 | Wagon Dynamics | 4.0 | 4.0 |
| 5 | EDR483 | Traffic Safety and Brakes | | 3.0 |
| 6 | EDR500 | Locomotive Power Drives and Electrical Equipment | | 4.0 |
| 7 | EDR491 | Diesel Locomotive Repair and Technical Maintenance Technology | 5.0 | 5.0 |
| 8 | EDR553 | Automation of Diesel Locomotive Systems | | 3.0 |
| 9 | EDR556 | Technical Operation and Management of Diesel Locomotives | | 3.0 |
| 10 | EDR554 | Technical Diagnostics of Diesel Locomotives | | 3.0 |
| 11 | EDR484 | Methods of Rolling Stock Parts Restoration | | 2.0 |
| 12 | EDR377 | Rolling Stock Repair Organization and Management | | 2.0 |
| 13 | EDR576 | Wagon Mechanics | | 4.0 |
| 14 | EDR700 | Technology of Wagon Construction and Repair | 5.0 | 5.0 |
| 15 | EDR560 | Management of Wagon Technical Operation | | 4.0 |
| 16 | EDR442 | Automation of Wagon Construction and Repair | | 2.0 |
| 17 | EDR559 | Technical Diagnostics of Wagons | | 4.0 |
| 18 | EDE518 | Nondestructive Control in Railway Transportation | | 4.0 |
| | | | 8.0 | 28.0 |
| 1 | EDR582 | Operation Optimization | 4.0 | 4.0 |
| 2 | EDR585 | Freight Work Optimization | 4.0 | 4.0 |
| 3 | EDR580 | Operation Management | | 4.0 |
| 4 | EDR488 | Railway Stations and Junctions | | 5.0 |
| 5 | EDR487 | Freight Transportation and Commercial Activity Organization | | 5.0 |
| 6 | EDR586 | Optimiization of Loading and Unloading Operations | | 2.0 |
| 7 | EDE501 | Railway Automatic and Telemechanic Systems | | 4.0 |
| 8 | EDE409 | Accounting Computer Systems for Transportation | | 2.0 |
| 9 | EDR490 | Railway Enterprise Organization and Management | | 2.0 |
| 10 | EDE493 | Railway Automatic Operation Systems | | 3.0 |
| | | | 8.0 | 28.0 |
| 1 | EDR567 | Reliability of Continuously Welded Rail Track | 4.0 | 4.0 |
| 2 | EDR565 | Technical Diagnostics of Rail Track Machines and Equipment | 4.0 | 4.0 |
| 3 | EDR566 | Calculations of Rail Track Elements | 4.0 | 4.0 |
| 4 | EDR406 | Rail Track Machines and Equipment (special course) | 4.0 | 4.0 |
| 5 | EDR375 | Railway Track Facilities | | 5.0 |
| 6 | EDR400 | Rail Track Surveying and Design | | 5.0 |
| 7 | EDR401 | Bridges and Ducts Construction and Maintenance | | 3.0 |
| 8 | EDR402 | Engineering Geology, Ground Mechanics and Foundations | | 3.0 |
| 9 | EDR408 | Construction Materials at Rail Track Facilities | | 2.0 |
| 10 | EDR373 | Track Repair Technology and Mechanization | 5.0 | 5.0 |
| 11 | EDR357 | Track Repair Work Organization and Management | | 2.0 |
| 12 | EDR405 | Technical Fundamentals of Rail Track Machines Construction | | 2.0 |
| 13 | EDR407 | Rail Track Work Mechanization | | 2.0 |
| 14 | EDR372 | Construction Machines and Track Machine Repair Technology | | 2.0 |
| 15 | EDR404 | Rail Track Machine Exploitation | | 2.0 |
| 16 | EDR369 | Reliability and Technical Diagnostics of Rolling Stock | | 2.0 |
| 17 | EDR403 | Rail Track Machine Hydraulic and Electric Drive | | 2.0 |

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| 18 | EDE518 | Nondestructive Control in Railway Transportation | 4.0 | 4.0 |
| B5 | | Pedagogical and Psychological Sciences Study Courses | 4.0 | 4.0 |
| 1 | HSP484 | Psychology | 2.0 | 2.0 |
| 2 | HSP446 | Pedagogy | 2.0 | 2.0 |
| 3 | HSP485 | Communication Psychology | 2.0 | 2.0 |
| 4 | HFL433 | Presentation Skills | 2.0 | 2.0 |
| C | | Free Elective Study Courses | 4.0 | 4.0 |
| D | | Practical Placement | 6.0 | 32.0 |
| 1 | EDR705 | Practical Work | 6.0 | |
| 2 | EDR010 | Practical Work | | 32.0 |
| E | | Final Examination | 20.0 | 28.0 |
| 1 | EDR002 | Master's Thesis | 20.0 | |
| 2 | EDR011 | Master's Thesis Including Project | | 28.0 |
| <i>K.p.[*] kredītpunkti studiju programmas variantā</i> | | | | |