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Study programme "Transport"

Main attributes

Title	Transport
Identification code	MDT0
Education classification code	51525
Level and type	Doctoral (Third Cycle) Studies
Higher education study field	Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering
Head of the study field	Aldis Balodis
Department responsible	Faculty Of Civil And Mechanical Engineering
Head of the study programme	Sergejs Kuzņecovs
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	16.11.2022 - 17.11.2028; Accreditation certificate No 2022/30-A
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D) in Engineering and Technology / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Master degree of engineering science in transport or mechanics and mechanical engineering, or comparable education; or master degree of engineering science of transport and traffic or mechanical engineering, or comparable education

Description

Abstract	<p>The study program is a higher level study programme in the field of transport and communication science. The study program is implemented by the Institute of Aeronautics of RTU Faculty of Transport and Mechanical Engineering (FTME). To provide a high quality methodical control over the study programme content and implementation, the study programme is attached to the branch of mechanical engineering and transport. The study programme is implemented in cooperation with other structural units of RTU FTME. The duration of studies is 4 years; the scope of the study programme is 192 CP.</p> <p>The study program envisages the acquisition of theoretical study courses of fundamental nature and specialized study courses of narrow specialization, which are appropriate to the branch, as well as humanities and foreign languages. The contents of study programme study courses are regularly improved by completing the study process with the newest and most effective methods and principles of study process organization. Doctoral students work according to individual work plans developed for each academic year. Pedagogical work is an obligatory part of the plan. To acquire pedagogical skills and experience, the doctoral students of the study programme are involved in the process of teaching by lecturing separate subjects to bachelor students, supervising laboratory, practical and course works, checking and assessing study and examination works.</p> <p>Doctoral students are offered to study abroad for different time periods as a result of which they get additional qualifications of different levels. Study courses of appropriate level and scope, which are acquired abroad, can be equated with and included in the study programme.</p>
Aim	The aim of the study programme is to prepare highly qualified scientists in the field of transport and traffic, specialists for pedagogical and scientific work, who have systemic, analytical, critical and creative thinking and are able to solve the tasks of scientific innovation.
Tasks	<p>The objectives of the study programme:</p> <ul style="list-style-type: none"> - to provide in-depth theoretical knowledge in the fundamental directions of transport and communication branch; - to provide the ability to carry out scientific-research; - to provide the ability to formulate and independently solve scientific problems; - to provide skills for scientific discussions about the work topics and create the ability to enter discussions on other scientific topics of the field; - to provide knowledge about innovative technical methods (training, studying, experience, science, techniques, technology, manufacturing); - to provide knowledge and skills to perform pedagogical work; - to consolidate the knowledge of foreign languages; - to foster scientific research of international significance and performances at international conferences and seminars.

Learning outcomes	<p>Knowledge (knowledge and understanding):</p> <ul style="list-style-type: none"> - can prove that they know and understand the most topical scientific theories and facts related to mechanics, engineering and transport and communication, know modern scientific research methodology and methods in the professional field and in relation to other fields of science. <p>Skills (ability to use knowledge, communication, general skills):</p> <ul style="list-style-type: none"> - can independently evaluate and select the methods that are appropriate to scientific research into transport and communication or mechanics and engineering; - can provide a new understanding of existing knowledge and its practical application, and help to implement voluminous original research a part of which can reach the level of internationally quoted publications; - can communicate, both orally and in written form, with scientific circles and society in general about their own field of scientific activity, computer simulation and optimization of transport systems functioning, automated methods of designed products optimization, technological methods of vehicle safety improvement, calculation and design methods for vehicle precision modular systems; - can independently upgrade their scientific qualification and carry out scientific projects in the field of transport and engineering with achievements that correspond to the international criteria of the science branch; - can manage research or development tasks at transport systems enterprises, institutions and organizations where wide research knowledge and skills are required. <p>Competence (analysis, synthesis and evaluation):</p> <ul style="list-style-type: none"> - can solve important research or innovation tasks of transport systems by promoting independent critical analysis, synthesis and evaluation; - can independently propose a research idea, structure and manage large-scale scientific projects including those on an international scale.
Final/state examination procedure, assessment	<p>At the end of the study programme, a doctoral thesis (dissertation) is defended. The scientific degree of a doctor is possibly awarded for a consistently developed doctoral thesis containing scientifically original, proven results and providing new insights into the specific subfield of sciences. The relevance of the work is assessed by the State Scientific Committee, the qualification commission, experts of the Latvian Science Council, and Doctorates in the relevant field of the science council, taking into account the following criteria: whether the scientific work is completed research with sufficient scientific novelty, appropriate content, and scope, whether modern analysis and data processing methods are used in work, whether there are publications in peer-reviewed international scientific publications, and scientific research results have been discussed at international scientific conferences (seminars). The decision is made by the Promotion Board at a secret ballot.</p>
Description of the future employment	<p>As a result of doctoral studies a student gets knowledge for further pedagogical work in higher education institutions, scientific research institutions and companies.</p>
Special enrollment requirements	<p>English language proficiency equivalent to at least CEFR B2 level.</p>
Opportunity to continue studies	

Courses

No	Code	Name	Credit points
A		Compulsory Study Courses	15.0
A1		General Education Study Courses	15.0
0	EDE611	Design and Analysis of Experiments	5.0
1	MAA608	Transport vehicle design reliability and ecology	10.0
B		Compulsory Elective Study Courses	21.0
B1		Field-Specific Study Courses	21.0
1	TST604	Modern Technologies of Damage Diagnostics in Transport Machines	5.0
2	EDE603	Traffic Flow Theory	10.0
3	MAA603	Vehicle Crash Mechanics	5.0
4	MAA604	Vehicular Accident Investigation and Reconstruction	5.0
5	MAA606	Dynamics of Vehicle and Road System	5.0
6	MAA605	Vehicle Transmissions and Suspensions	5.0
7	MAA609	Scientific Seminar in Road Transport	6.0
C		Free Elective Study Courses	6.0
E		Final Examination	150.0
1	MAA009	Research Work	150.0
A		Compulsory Study Courses	15.0
A1		General Education Study Courses	15.0
0	EDR612	Application of Mass Service Theory Elements to Transport	10.0
1	EDR613	Technology of Transport Logistic System	5.0
B		Compulsory Elective Study Courses	21.0
B1		Field-Specific Study Courses	21.0
1	EDR605	Dynamic Loading of Rolling Stock Units	10.0
2	EDR606	Horizontal Dynamic of Rolling Stock	10.0
3	EDR607	Dynamics of Locomotive Traction Drive	5.0
4	EDR608	Vibroacoustic diagnostics of rolling stock	5.0
5	EDR609	Rail Track Safety and its Management	10.0
6	EDR610	Rail Track Calculation	5.0
7	EDR611	Analysis of Railway Stations and Divisions Interaction	10.0
8	EDR614	Statistical Theory of Train Traffic Safety	5.0
9	EDR615	Train Flow Optimization	5.0
10	EDE611	Design and Analysis of Experiments	5.0
11	EDE614	Computer Design Systems in Transportation	3.0
12	MTM636	Design and Analysis of Engineering Experiments	2.0
13	EDR600	Scientific Seminars	4.0
14	EEP601	Patents	2.0
15	EEI603	Supervising of Scientific Project	2.0
C		Free Elective Study Courses	6.0
E		Final Examination	150.0
1	EDR009	Research Work	150.0
A		Compulsory Study Courses	15.0
A1		General Education Study Courses	15.0
1	TAK604	Computer mathematics for aviation transport problem solving	5.0
2	TAK605	Mathematical rationale for aviation transport maintenance	5.0
3	TAK606	Experimental design and statistical treatment of experimental data	5.0
B		Compulsory Elective Study Courses	21.0
B1		Field-Specific Study Courses	21.0
1	TAK610	Fracture Mechanics of Composite Materials	5.0
2	TAS602	Fatigue, Corrosion and Wear of Airframe Structures	10.0
3	TAS603	Technical Diagnostics and Nondestructive Methods of Control	10.0
4	TAS604	Computer Methods of Structural Calculation	5.0
5	TAS605	Computer Experiments and Simulation in Aerodynamics	5.0
6	TAS601	Dynamics, Strength and Fatigue Durability of Aviation Structures	10.0
7	TAK609	Structure Endurance of Composite Materials	10.0
8	TAD602	Simulation and Calculation of Characteristics of Heat Engines	10.0
9	TAK607	Loads, Resources, Survivability	5.0
10	TAE608	Management of Maintenance Processes	5.0
11	TAE605	Active methods of the flights safety ensuring	10.0

12	TAK608	Probability Failure Models	10.0
13	TAS702	Scientific Seminar	6.0
C		Free Elective Study Courses	6.0
E		Final Examination	150.0
1	TAK009	Research Work	150.0
2	TAA009	Research Work	150.0
3	TAE009	Research Work	150.0
4	TAS009	Doctoral thesis	150.0
A		Compulsory Study Courses	15.0
A1		General Education Study Courses	15.0
1	TRR601	Vehicle Maintenance Reliability	4.0
2	TST601	Logistics Systems in Transportation	5.0
3	TLK601	Computer Analysis and Calculation of Operational Characteristics of Transport Machines	6.0
B		Compulsory Elective Study Courses	21.0
B1		Field-Specific Study Courses	21.0
1	TST602	Computer Simulation and Optimization of Transportation Systems Functioning	5.0
2	TLK603	Computer Analysis of Damaged Construction Dynamics	5.0
3	TDM602	Computer Simulation and Calculation of Engineering Problems of Hydro-gas-thermodynamics	5.0
4	TDT601	Scientific Seminar	6.0
5	EEI603	Supervising of Scientific Project	2.0
6	TST404	Fundamentals of Research	2.0
7	EEP601	Patents	2.0
C		Free Elective Study Courses	6.0
E		Final Examination	150.0
1	TST009	Research Work	150.0
2	TRR009	Doctoral Thesis	150.0
3	TMN009	Research Work	150.0