



VILNIUS COLLEGE OF TECHNOLOGIES
AND DESIGN

Railway Transport Engineering

State code: 6531EX021

Study field: Transport Engineering

Study mode and scope of the study programme:

Part-time studies - 4 years

Study aims

The aim of Railway Transport Engineering study programme is to prepare competitive, highly qualified transport engineering specialists who are able to work independently and apply the latest technological knowledge in the field of Transport Engineering, as well as independently make technical decisions, successfully work in competitive market conditions and improve during professional activities and for the labour market.

Study outcomes

- Understanding of the general physical and chemical processes and phenomena of natural sciences that explain the happenings of natural and technological environment, also general regularities and laws of mathematics in order to understand the fundamental basics of transport engineering.
- Awareness of the most important concepts of transport engineering study field and ability to understand their content.
- Awareness of the basic knowledge of transport engineering, vehicle structure, the principles of operation and maintenance of automobiles, structural and exploitation materials which are important in practice.
- Awareness of the context of adjacent study fields and their solutions.
- Ability to apply professional knowledge and understanding on how to solve problems of transport engineering study field, to creatively apply familiar methods.
- Ability to apply knowledge and understanding in the analysis of engineering tasks and choose appropriate methods, experimental, laboratory and industrial equipment in order to solve these tasks.

- Ability to apply analytical and modelling methods in solving qualitative and quantitative tasks of transport engineering study field.
- Ability to apply engineering knowledge and understanding in performing, organising and controlling technological processes of internal combustion engines, mechanical, hydraulic and pneumatic systems of transport machines according to intended requirements.
- Ability to find appropriate professional information using information technologies, databases, software and other scientific and engineering information sources.
- Ability to conduct tests, practical and laboratory investigations in order to solve transport engineering tasks, to process their results and provide practical conclusions of these results.
- Skills in operating technological equipment used in transport engineering study field.
- Ability to select engineering solutions as well as means and technological equipment needed to design, organise, carry out and control of technological process of diagnostics and maintenance of vehicles engines, of their control systems, of their management and regulation.
- Ability to combine theoretical and applied knowledge in solving engineering problems related to vehicle secure exploitation.
- Understanding of ethical, environmental, economic and commercial implications of engineering activities.
- Awareness of the main occupational and fire safety requirements.
- Understanding of design methodologies and ability to apply them in design of technological processes.
- Ability to solve engineering tasks as an individual and as a member of a team.
- Ability to communicate in a correct Lithuanian language and in at least one foreign language with the engineering community and the public.
- Understanding of the impact of engineering solutions on the public and the environment, compliance with the rules of professional ethics and of engineering activities and awareness of responsibility for engineering activities.
- Knowledge of the principle project management and business aspects at engineering level which are revealed through the organisational skills, ability to plan and carry out productive and efficient work methods.
- Understanding of the importance of and preparedness for independent life-long learning.

The student will:

- work as a steward at SC “Lithuanian Railways“;
- work as a project specialist and organizer in the implementation and management of projects in the railway sector;

- work as a rolling stock specialist in companies operating and maintaining traction rolling stock;
- work as a specialist in the operation, maintenance and repair of railway traffic management system equipment.

SUBJECT TITLE	ECTS CREDITS	ASSESSMENT
Semester I (22 Credits)		
Speciality Language Culture	3	E
Mathematics	4	
Physics	3	D
Engineering Graphics	6	D
Technological Practices	3	
<i>Optional study subjects</i>		
Sociology	3	E
Sustainable development	3	E
Psychology	3	E
Semester II (23 Credits)		
Mathematics	2	E
Physics	3	E
Computer Aided Design	6	D
Applied Programmes	3	D
Electrical Engineering and Electronics	3	
Technological Practices	3	D
<i>Choice (choose one):</i>		
Foreign Language (English)	3	D
Foreign Language (French)	3	D
Foreign Language (Russian)	3	D
Foreign Language (German)	3	D
Semester III (22 Credits)		
Sustainable Environment and Occupational Safety	3	E
Applied Research	3	D
Electrical Engineering and Electronics	3	E
Engineering Mechanics	4	
Industrial 1 Practics	6	D
<i>Choice (choose one):</i>		
Foreign Language (English)	3	E
Foreign Language (French)	3	E
Foreign Language (Russian)	3	E
Foreign Language (German)	3	E
Semester IV (23 Credits)		
Engineering Mechanics	2	D
Materials Engineering	3	D
Railway Rolling Stock	6	E
Railways and Station Equipment	3	
Industrial 2 Practics	6	D
<i>Choice (choose one):</i>		
Welding Technology	3	D
Sustainable Transport	3	D
Science Workshop Project	3	D
Semester V (23 Credits)		
Traction Theory of Rolling Stock	3	D
Relay Traffic Control Systems	6	E
Railways and Station Equipment	3	E
Communication and Technical Diagnostics Systems	2	D
Rolling Stock Exploitation	6	E

<i>Choice (choose one):</i>		
Rail Wagon Management	3	D
Database programming	3	D
Interdisciplinary Project	3	D
Semester VI (22 Credits)		
Relay Traffic Control Systems	6	D
Microprocessor-Based Traffic Control Systems	3	D
Communication and Technical Diagnostics Systems	4	E
Industrial 3 Practics	6	D
<i>Choice (choose one):</i>		
Electric Traction Rolling Stock	3	D
Visual and Protective Systems	3	D
Transport System	3	D
Semester VII (22 Credits)		
Station Technology Design	3	D
Engineering Economics	3	
Railway Traffic Organisation	4	D
Power Supply Systems	3	E
Project Management	3	D
Railway Traffic Safety	3	E
Law	3	E
Semester VIII (23 Credits)		
Engineering Economics	3	E
Railway Traffic Organisation	2	E
Final Practice	6	D
Final Thesis	12	D

E - Exam

D - Independet work