



VILNIUS COLLEGE OF TECHNOLOGIES
AND DESIGN

Automobile Electronics Systems

State code: 6531EX024

Study field: Electronics Engineering

Study mode and scope of the study programme: Full-time studies - 3 years, Part-time studies - 4 years

The student will be able:

- to professionally design automobile electronics systems;
- to install, maintain and repair automobile electronics systems;
- to manage the companies providing these services;
- to plan the activities of a company (division) and analyze the results of the activities of a company (division);
- to solve engineering tasks, create models for solving these tasks and analyze their characteristics;
- to evaluate engineering solutions from ethical, social, economic and safety aspects;
- to organize and perform diagnostics, maintenance and elimination of faults in automobile electrical and electronics systems based on the knowledge of electromechanics, electrical, electronics and automation devices structure, their operating principles and parameter setting;
- to select devices for automobile electronics systems and their characteristics;
- to diagnose failures of automobile electrical and electronics systems, determine their causes, select and use modern diagnostic and measuring devices for troubleshooting;
- to combine and regulate the indicators of electronics control equipment, the main technical parameters of automobiles, performance characteristics, calculate the main technical parameters of automobile units;
- to apply the principles of internal and external diagnostics of comfort and safety systems;
- to analyze and evaluate the types of alternative energy storage sources, technologies and characteristics of their use and perform the necessary technical and economic calculations;

- to perform harmonization and regulation of electronics systems;
- to find power supply failures, their causes, select measuring devices, analyze structural and principal schemes;
- to know electrical and electronics circuits, their operating principles and selection of work models;
- to know the specifics of adjacent engineering fields, which will help to assess the problems of electronics engineering from a broader perspective;
- to participate in teamwork, communicate effectively and responsibly.

The student will:

- work as an automobile electronics systems specialist in various vehicle repair companies;
- work as a designer in automobile electronics systems design and manufacturing companies;
- work as a specialist in automobile electronics systems for vehicle and component trade organizations;
- work as an automobile electronics system specialist in vehicle equipment sales and maintenance companies;
- manage his/her own business.

SUBJECT TITLE	ECTS CREDITS	ASSESSMENT
Semester I (30 Credits)		
Mathematics	6	E
Physics	6	E
Materials Engineering	3	D
Applied Programmes	3	D
Automobile construction	6	E
Engineering Mechanics	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 II (30 Credits)		
Speciality Language Culture	3	D
Physics	3	E
Engineering Graphics	6	D
Electrical engineering	6	E
Educational Practice	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
<i>Optional study subjects</i>		
Sociology	3	E
Sustainable Development	3	E
Psychology	3	E
Semester III (30 Credits)		
Sustainable Environment and Occupational Safety	3	E
Electronics and Automatics	6	D
Analogue and Digital Devices	6	E
Electrical Measurements	3	D
Applied Research	3	D
Technological Practices	6	D
<i>Choice (choose one):</i>		
Transport Ecology	3	D
Automobile Technical Inspection	3	D
Automotive Exploitation Materials	3	D
Science Workshop Project	3	D
Semester IV (30 Credits)		
Internal Combustion Engines and Their Electronics	3	E
Data Communications Systems	3	E
Project Management	3	D
Microprocessors and Controllers	6	E
Diagnostic Systems	6	D
Programming	3	E
Electrical Equipment Tuning Practice	6	D
Semester V (30 Credits)		
Electrical and Electronic Devices and Management	6	E
Electronics of Engine Management Systems	6	E
Hybrid and Electric Drive Automobiles Electronic Systems	3	E
Law	3	E
Engineering Economics	3	D
Industrial Practice	6	D

Choice (choose one):

Intelligent Traffic Control Systems	3	D
Traffic Safety	3	D
Interdisciplinary Project	3	D

Semester VI (30 Credits)

Engineering Economics	3	E
Active and Passive Safety Systems	3	E
Safety and Comfort Systems	3	E
Final Practice	6	D
Final Thesis	12	D

Choice (choose one):

Technical Maintenance of Automobiles	3	D
Robotics	3	D
Alternative Energy Automobiles	3	D

E - Exam

D - Independent work