

OCCUPATIONAL QUALIFICATION STANDARD

Vehicle Technician, EstQF Level 5

An occupational qualification standard is a document which describes the set of skills, knowledge and attitudes, i.e. competence requirements, needed to successfully accomplish duties. Occupational qualification standards are used for compiling curricula and awarding qualifications.

Occupational title	Level of Estonian Qualifications Framework (EstQF)
Vehicle Technician, EstQF Level 5	5

Possible specialisation and titles on occupational certificate	
Specialisation	Title on occupational qualification certificate
Car diagnostics	Car Diagnostician, EstQF Level 5
Truck and bus diagnostics	Truck and Bus Diagnostician, EstQF Level 5
Mobile machinery diagnostics	Mobile Machinery Diagnostician, EstQF Level 5

Part A DESCRIPTION OF WORK

A.1 Description of work
<p>The profession of vehicle technician comprises the qualifications of Vehicle Technician, Level 3; Vehicle Technician, Level 4; and Vehicle Technician, Level 5.</p> <p>Vehicle Technician, Level 5 analyses the diagnostics, repairs and causes of malfunctions in cars, trucks, buses and mobile machinery and identifies and eliminates malfunctions.</p> <p>They work independently, using repair databases, catalogues and manuals as needed and are responsible for work safety as well as dangerous traffic situations occurring as a result of maintenance and/or repair work. Continuous self-development is necessary.</p> <p>A vehicle technician works independently and in a team, their work requiring communication with co-workers and clients. Vehicle Technician, Level 5 supervises Level 4 vehicle technicians, guiding and instructing them in malfunction diagnostics and helping them with the analysis of collected data in order to more precisely evaluate the extent of repairs needed.</p>
A.2 Tasks
<p>A.2.1 Engine electronics diagnostics and repair</p> <p>A.2.2 Transmission diagnostics and repair</p> <p>A.2.3 Bus network diagnostics and repair</p> <p>A.2.4 Electronic systems and passenger comfort systems diagnostics and repair</p> <p>A.2.5 Steering systems and chassis diagnostics and repair</p> <p>A.2.6 Climate control (passenger compartment heating, ventilation and cooling systems) diagnostics and repair</p> <p>A.2.7 Safety systems diagnostics and repair</p> <p>A.2.8 Vehicle hydraulic and pneumatic tools diagnostics and repair</p> <p>A.2.9 Vehicle tools and their fixture mechanisms diagnostics and repair</p>
Specialised areas of work
<p>Specialisation depends on the category/type or purpose of vehicle: car technician, truck and bus technician and mobile machinery technician. All specialisations are directly related to the described tasks.</p>
Elective areas of work
<p>A.2.10 Maintenance, diagnostics and repair of electrical high-voltage power units, high-voltage batteries, controllers and transducers.</p>

A.2.11 Installation, maintenance, diagnostics and repair of autogas systems
A.3 Work environment and specific nature of work
Vehicle Technician, Level 5 mostly works during the day. Work consists of various tasks and is mostly done indoors. Dangerous work situations may occur. A technician works mostly standing, but often also in ergonomically difficult conditions. They may come into contact with substances posing a health risk (engine fuels, lubricants and technical liquids, acids, exhaust fumes, etc.). The work environment may be noisy, dusty and/or damp and there may be vibrations.
A.4 Tools
Vehicle Technician, Level 5 uses diagnostics devices, handheld, electric, hydraulic and pneumatic tools and workshop, repair and maintenance devices, as well as computer-based diagnostic programmes and simulators using various software. They wear workwear and personal protection gear.
A.5 Personal qualities required for work: abilities and characteristics
The expected traits of Vehicle Technician, Level 5 are precision, a sense of responsibility, the ability to cooperate, stress tolerance and analytical and decision-making skills.
A.6 Professional preparation
Vehicle Technician, Level 5 has work experience as a Level 4 technician. They have undergone professional training.
A.7 Most common occupational titles
Vehicle technician, car technician, car diagnostician, truck and bus technician, mobile machinery technician, car mechanic, car electrician, technical maintenance worker, technical condition inspector, technical advisor, technical consultant.
A.8 Regulations governing profession
In order to transport vehicles, they must have the necessary driver's licence (Traffic Act).

Part B COMPETENCY REQUIREMENTS

B.1 Structure of occupation
At least one specialisation must be chosen when applying for the qualification. Mandatory competences B.2.1-B.2.9 and B.2.12 must be certified when applying for the qualification. Elective competences B.2.10 and B.2.11 may be certified when applying for the qualification.

B.2 Competences

MANDATORY COMPETENCES

B.2.1 Engine electronics diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on engine electrical systems and replaces and adjusts them as needed. 2. Checks exhaust fume composition and the functioning of exhaust fume regulation devices. 3. Reads and records error codes. 4. Records sensor and actuator parameters. 5. Activates actuators. 6. Measures noise, vibration, pressure and electrical signals. <p>Knowledge:</p> <ol style="list-style-type: none"> 1) principles of electronically operating internal combustion engines; 2) principles of operation of hybrid and electric drives; 3) principles of alternative fuel engines. 	

B.2.2 Transmission diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on the operation of transmission and its components (e.g. automatic gearboxes and four-wheel drive systems). 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Activates actuators. 5. Measures noise, vibration, pressure and electrical signals. 6. Dismantles, eliminates defects in and assembles devices. 	
B.2.3 Network diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on networks (e.g. CAN, LIN, MOST and flexray). 2. Records error codes and network parameters. 3. Ensures correct network functioning. 	
B.2.4 Electronic systems and passenger comfort systems diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on the functioning of electrical devices and passenger comfort systems and their components (e.g. headlamp adjustment, reversing and parking assist systems, audio and navigation devices, alarms and engine immobilisers). 2. Reads and records client settings (stereo memory, seat position, mirrors, etc.). 3. Reads and records error codes. 4. Records sensor and actuator parameters. 5. Activates actuators. 6. Measures and records electrical signals. 	
B.2.5 Steering systems and chassis diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on the condition of steering systems and chassis and their components (e.g. wheel and brakes, traction and stability control, anti-slip regulation and electronic differential system). 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Activates actuators. 5. Measures noise and vibration and records electrical signals. 6. Replaces devices. <p>Knowledge:</p> <ol style="list-style-type: none"> 1) basics of chassis and undercarriage configuration; 2) tyre classification and marking. 	
B.2.6 Climate control diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on climate control systems and their components. 2. Replaces and/or installs climate control systems and their parts. 3. Reads and records error codes. 4. Records sensor and actuator parameters. 5. Activates actuators. 6. Measures noise and vibration and records electrical signals. 7. Repairs and replaces devices. 	
B.2.7 Safety systems diagnostics and repair	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Performs diagnostics on active and passive safety systems and their components (e.g. safety system sensors, airbags and curtain airbags and seatbelt pre-tensioners). 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Measures and records electrical signals. 	

5. Replaces pyrotechnical passive safety systems if necessary.	
B.2.8 Vehicle hydraulic and pneumatic tools diagnostics and repair	EstQF Level 5
Performance indicators: 1. Performs diagnostics on hydraulic and pneumatic systems and their components. 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Measures and records electrical signals. 5. Replaces and repairs devices if necessary.	
B.2.9 Vehicle tools and their fixture mechanisms diagnostics and repair	EstQF Level 5
Performance indicators: 1. Performs diagnostics on tools, fixture mechanisms and their components (electro-pneumatically and electro-hydraulically operated systems). 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Measures and records electrical signals. 5. Replaces and repairs devices if necessary.	

OPTIONAL COMPETENCES

Elective competences B.2.10 and B.2.11 may be certified when applying for the qualification.

B.2.10 Vehicle high-voltage power units diagnostics and repair	EstQF Level 5
Performance indicators: 1. Performs diagnostics on vehicle high-voltage power units, high-voltage batteries, controllers and transducers and their components 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Measures and records electrical signals. 5. Replaces and repairs devices if necessary. 6. Observes legal acts relevant to the tasks. 7. Meets the requirements for the use of safety equipment and environmental safety at work. 8. Meets the safety requirements related to work involving tensioning.	
Knowledge: 1) Knowledge of network electricity and electricity safety.	
B.2.11 Diagnostics and repair of autogas systems	EstQF Level 5
Performance indicators: 1. Performs diagnostics on autogas systems in vehicles and their components. 2. Reads and records error codes. 3. Records sensor and actuator parameters. 4. Measures and records electrical signals. 5. Replaces and repairs devices if necessary. 6. Complies with legal acts and safety equipment use and environmental safety requirements related to the tasks.	
Knowledge: 1) Knowledge of safety requirements related to LPG and pressure equipment.	

RECURRING COMPETENCES

B.2.12 Recurring competences of Vehicle Technician, Level 5	EstQF Level 5
Performance indicators: 1. Works with appropriate tools and devices in compliance with maintenance and repair technology, work safety requirements and the procedures established in the enterprise.	

2. checks client complaints and gauges their validity, using simulation tests if necessary.
3. Prepares the work space according to the established work norms, keeps it organised and returns used tools and devices to their correct places after completing a task.
4. Plans maintenance and repair work, the order in which to do the work and the time needed to do so according to the availability or delivery of spare parts and repair materials.
5. Records and restores client settings (stereo memory, seat and wheel position, climate control settings, etc.).
6. Inspects and evaluates the quality compliance of the tasks agreed upon with the client against the repair manual, eliminating any deviations if necessary.
7. Presents customers with job descriptions and documentation (e.g. costs, maintenance log, act of transfer and receipt and a copy of the diagnostics results if necessary or requested by the client).
8. Uses energy-saving and environmentally friendly and safe work methods.
9. Does test drives if necessary, adhering to the Traffic Act and test drive instructions.
10. Communicates with co-workers and clients in a friendly and appropriate manner, resolving conflict calmly and offering solutions.
11. Describes the repair work to the client in an understandable way and giving professional explanations if necessary.
12. Ability to read technical drawings and schemes and to use repair databases, catalogues and manuals.
13. Uses a computer for information processing, communication, content creation and safety at the Basic user level (see Annex 1).
14. Has the following Estonian skills: comprehension at the B2 level and speaking and writing at the B1 level (see Annex 2).
15. At least one foreign language (preferably English) at the B1 level for comprehension and the A2 level for speaking and writing (see Annex 2).

Knowledge:

- 1) vehicle systems, mechanics, their parts and components, their construction, work principles and diagnostics (to a high level);
- 2) occupational and environmental safety requirements;
- 3) occupational health requirements;
- 4) fire safety requirements;
- 5) waste disposal requirements;
- 6) basics of management and team work;
- 7) basics of electrical engineering;
- 8) basics of pneumatics and hydraulics;
- 9) basics of machine elements and mechanics;
- 10) basics of technical measuring;
- 11) requirements of legal acts related to the occupation.

Assessment method(s):

Recurring competences are evaluated as part of the assessment of the other competences listed in the occupational qualification standard.

Part C GENERAL INFORMATION AND ANNEXES

C.1 Information concerning compilation and certification of occupational qualification standard and reference to classification of occupations

1. ID of occupational qualification standard in register of occupational qualifications	12-09122019-03/10k
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2. Occupational qualification standard compiled by:	Vladimir Krasnoštšjokov, Toyota Baltic AS Valter Kokkota, MTÜ Autokutseõppe Liit Peeter Johannson, Tallinna Linnatransport AS Tarmo Talismaa, Volvo Estonia OÜ Piret Lilover, SA Innove Ülo Ramp, MTÜ Autokutseõppe Liit Janek Pukka, Rakvere Ametikool Andrus Simberg, MTÜ Autokutseõppe Liit Ardo Antoni, Nissan Nordic Estonia
3. Occupational qualification standard approved by:	Transport and Logistics
4. No. of decision of Sectoral Council	13
5. Date of decision of Sectoral Council	09.12.2019
6. Occupational qualification standard valid until	19.10.2021
7. Occupational qualification standard version no.	10
8. Reference to International Standard Classification of Occupations (ISCO 08)	7231 Motor Vehicle Mechanics and Repairers
9. Reference to European Qualifications Framework (EQF)	5
C.2 Occupational title in foreign language	
English:	Vehicle Technician, EstQF Level 5
Finnish:	mootoriajoneuvon asentaja
Russian:	техник по автомобилям
C.3 Annexes	
Lisa 1 Scale of self-assessment in digital competence	
Lisa 2 Language skills level descriptions	