

OCCUPATIONAL QUALIFICATION STANDARD

Automation 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)
Automation Technician, EstQF Level 5	5

Possible specialisation and titles on occupational certificate	
Specialisation	Title on occupational qualification certificate
Production automation	Automation Technician, EstQF Level 5 Production automation
Building automation	Automation Technician, EstQF Level 5 Building automation

Part A DESCRIPTION OF WORK

A.1 Description of work
<p>Automation Technician, Level 5 works in companies (e.g. manufacturing and construction) engaged in the automation of technological processes, of manufacturing equipment and systems and of technical building systems, in which they install automation components, compile automation systems and perform maintenance using information and communication technology (ICT) solutions.</p> <p>An automation technician performs a variety of tasks under changing circumstances. They are prepared to assume the role of team leader and to cooperate with specialists in connected fields.</p> <p>Work in the fields of automation, information technology (IT), electricity and low voltage requires complex professional skills in IT, electricity and electronics.</p> <p>Automation Technician, Level 5 specialises in production or building automation.</p> <p>An automation technician specialising in production automation installs, configures, tunes and maintains industrial control systems (standalone automation devices, production lines and complexes), understanding the nature of production processes.</p> <p>Depending on the field and the size of the company, the duties of a production automatician may partially overlap with those of mechatronic and maintenance mechanics.</p> <p>An automation technician specialising in building automation installs, configures, tunes and maintains the automation of technical building systems (ventilation, cooling, heating and fire safety systems).</p> <p>They may perform installation and maintenance work to an extent that does not infringe the requirements provided for in occupational legislation and in the standards of the field.</p> <p>Lowest level of profession: Automatician, Level 4</p>
A.2 Tasks
<p>A.2.1 Planning and organisation of work</p> <ol style="list-style-type: none"> 1. Finding the necessary information from technical documentation. 2. Operational planning. 3. Finding and preparing materials and work equipment.

A.2.2 Ensuring safety

1. Compliance with and verification of safety requirements.
2. Organising a safe workplace.
3. Using safety and personal protective equipment.

A.2.3 Installation and connection of automation components

1. Cabling.
2. Installation of equipment and components.
3. Connecting, configuring and tuning devices.
4. Verification and documentation of performance.

A.2.4 Inspection and maintenance

1. Conducting and organising inspections and maintenance.
2. Elimination of faults.
3. Conducting periodic maintenance work.
4. Documentation of results.

Specialised areas of work

A.2.5 Production automation

1. Installation, configuration and tuning work based on production technology.
2. Maintenance of equipment and systems.

A.2.6 Building automation

1. Installation, configuration and tuning work of the control automation of technical systems.
2. Maintenance of the control automation of technical systems.

A.3 Work environment and specific nature of work

Work may take place outdoors, at heights, in dangerous work environments or under specific conditions (e.g. of elevated hygiene and sterility). Potential hazards include the risk of explosion and fire and exposure to chemicals. Personal protective equipment and special clothing are required. The work may require physical and mental effort and the fast pace of the work must be taken into account.

A.4 Tools

ICT computing hardware and software.
Hand-held, electrical and specialised tools, measuring equipment and accessories.

A.5 Personal qualities required for work: abilities and characteristics

The job requires logical thinking, consistency, dexterity and tolerance of routine. Good analytical skills, the ability to concentrate, coordination and adaptability are also important. Working with small parts requires good eyesight and colour differentiation.

A.6 Professional preparation

Professional skills are acquired in the course of work, training courses or continuing training at a vocational school that require(s) automation, ICT and electrical professional skills and experience.

A.7 Most common occupational titles

Senior automatician, automatician/installer, automatician/fitter, maintenance automatician, maintenance technician, automation fitter, automatician/operator, machine tool automatician, etc.

A.8 Regulations governing profession

Work requires the certified completion of electrical safety, first aid and work safety training.
Working in hazardous environments requires compliance with the Occupational Health and Safety Act.

Part B

COMPETENCY REQUIREMENTS

B.1 Structure of occupation

Competences B.2.1-B.2.4, recurring competence B.2.7 and one competence connected to the specialisation from options B.2.5 and B.2.6 must be certified when applying for the qualification of Automation Technician, Level 5.

B.2 Competences

MANDATORY COMPETENCES

B.2.1 Planning and organisation of work	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Reads and interprets automation diagrams and other figures related to automation systems. 2. Assesses the feasibility of automation systems and proposes amendments to automation diagrams, if necessary. 3. Coordinates technical solutions with related specialists. 4. Plans materials and tools based on the task and follows the principles of cost accounting and preparing calculations using appropriate software. 5. Distributes tasks and monitors the implementation of planned activities. 6. Finds from professional databases technical information about devices that is needed for the installation and maintenance of systems. 7. Chooses and prepares the materials necessary for the task. 8. Assembles the tools relevant for the task and ensures their conformity with requirements. 	
B.2.2 Ensuring safety	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Follows work safety requirements at every stage and monitors that they are followed in order to prevent occupational accidents. 2. Instructs the members of the working group on work safety. 3. Organises safe workplaces for themselves and employees, taking into account possible risks and hazards. 4. Follows work environment safety rules and organises waste collection, following procedural and supervisory rules. 5. Correctly uses safety and personal protective equipment and ensures the availability of appropriate personal protection equipment. 6. Regularly checks the existence and working order of safety and personal protective equipment. 	
B.2.3 Installation and connection of automation components	EstQF Level 5
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Installs low-voltage and signal cables based on the task and in compliance with the requirements of the cable manufacturer and the given project and creates the necessary automation cables connections. 2. Assesses the compliance of the work with the rules and project documentation. 3. Installs control devices, actuators, sensors and measuring devices (excluding specific systems) following the installation arrangement diagram and using appropriate tools and techniques. 4. Arranges for the installation of devices. 5. Connects the electrical system, ICT components and control unit based on the functionality and compatibility of software components. Configures and tunes devices according to the technical documentation, checking the connections of devices and assessing their compliance with the project. 6. Checks the performance of the system and sets up the system according to the instruction materials. 7. Assesses the conformity of the installation indicators to the project and norms both visually and with measuring tools. 8. Compiles inspection protocols for the installation work of the team and documents the changes in accordance with the forms provided. 	
B.2.4 Inspection and maintenance	EstQF Level 5
<p>Performance indicators:</p>	

1. Checks the conformity of the technical indicators of automation installations with rated values via measurements, using appropriate methods and system maintenance programmes to find errors.
2. Performs tasks related to the operation, maintenance and repair of the equipment and systems.
3. Designs measures to eliminate faults and plans maintenance work according to maintenance instructions.
4. Monitors the operation of an automation system, adjusting the setting sizes of process parameters in the automation equipment, if necessary.
5. Analyses hardware and software faults in the automation systems of equipment, processes and machines within the limits of their competence.
6. Eliminates faults using automation-related know-how.
7. Performs periodic maintenance according to maintenance instructions.
8. Prepares control protocols for maintenance work and documents the changes made to a digital system using software.
9. Prepares and updates work instructions, taking into account the changes and amendment suggestions made.

COMPETENCES RELATED TO SPECIALISATION

One competence connected to the specialisation from options B.2.5 - B.2.6 must be certified when applying for the qualification of Automation Technician, Level 5.

Production automation	
B.2.5 Production automation	EstQF Level 5
Performance indicators: 1. Installs and regulates manufacturing devices, systems and robots related to the manufacturing process in use (e.g. electricity, water treatment, district heating, wood, chemical, food and mechanical industries) using their know-how related to the manufacturing process. Configures and tunes the system using automation hardware and software solutions. 2. Performs inspections of electro-, pneumo- and hydro-automation devices and systems in accordance with maintenance instructions. Restores system performance by replacing components. Leads the process towards a technologically stable mode of operation. Corrects the parameters of the automated process according to the requirements of the technology in cooperation with connected specialists. Makes proposals for updating and optimising systems.	

Building automation	
B.2.6 Building automation	EstQF Level 5
Performance indicators: 1. Installs and regulates the building's technical systems (ventilation, cooling, heating and fire safety automation) and their control automation following the requirements and project documentation. Configures and tunes the system using automation hardware and software solutions. 2. Performs inspections of the control systems of the building's technical systems (ventilation, cooling, heating and fire safety automation) according to the maintenance instructions and current legislation and standards. Restores system performance by replacing components using automatic adjustment and control devices and equipment (including measuring devices in their field of use). Updates functional and control diagrams for production automation.	

RECURRING COMPETENCES

B.2.7 Recurring competences of Automation Technician, Level 5	EstQF Level 5
Performance indicators: 1. Reads and understands technical documentation including digital figures and uses professional terminology. 2. Is goal-oriented and responsible, adhering to the legal requirements of the occupation. 3. Participates in team work, shares all necessary and useful information with others and works to achieve the best joint result.	

4. Organises the work of the team as the leader of the work group: sets goals and initiates activities within their decision-making area, provides timely and relevant feedback to and encourages and recognises employees.
5. Communicates with colleagues, clients and specialists from connected fields in a polite and proper manner and presents information (including technical information) in a clear and comprehensible way.
6. Guides colleagues within the limits of their competence: checks and improves the performance of those supervised and gives them feedback.
7. Makes use of opportunities for self-improvement and keeps informed of developments in professional technology.
8. Uses professional ICT hardware and application software, following the data protection requirements and rules of the enterprise;
9. Uses basic digital skills: at the Basic level for safety and content creation and at the Independent user level for problem-solving, information-processing and communication (see Annex 1 – Scale of self-assessment in digital competence).
10. In their work, uses English at least at the B1 level to obtain specialised information, to work with materials and for professional communication (see Annex 2 – Language skills level descriptions).

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	07-08102019-1.4/7k
2. Occupational qualification standard compiled by:	Eerik Laid, Ecomatic AS Leho Kuusk, ABB AS Ülo Kala, Walde AS Dmitri Sabunov, G4S Tõnu Kutsar, Telealarm OÜ Ellen Mihklepp, Tallinna Vesi AS Urmas Leitmäe, Eesti Elektritööde Ettevõtjate Liit Vadim Veeremaa, Tallinna Polütehnikum Andre Lilleleht, Eesti Turvaettevõtete Liit
3. Occupational qualification standard approved by:	Energy, Mining and Chemical Industry
4. No. of decision of Sectoral Council	14
5. Date of decision of Sectoral Council	08.10.2019
6. Occupational qualification standard valid until	07.10.2024
7. Occupational qualification standard version no.	7
8. Reference to International Standard Classification of Occupations (ISCO 08)	3113 Electrical Engineering Technicians
9. Reference to European Qualifications Framework (EQF)	5

C.2 Occupational title in foreign language

English:	Automation Technician, EstQF Level 5
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C.3 Annexes

Lisa 1 [Scale of self-assessment in digital competence](#)

Lisa 2 [Language skills level descriptions](#)