

# OCCUPATIONAL QUALIFICATION STANDARD

## Electrician, 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)
Electrician, EstQF Level 5	5

### Part A DESCRIPTION OF WORK

<b>A.1 Description of work</b>
<p>The goal of Electrician, Level 5 is to ensure the maintenance and safety of electrical installations. Electrician, Level 5 installs and operates electric installations in various buildings, facilities and external networks in which devices with AC voltage supply must not exceed a capacity of 1000 V and devices with DC voltage supply (hereafter referred to as low-voltage) must not exceed a capacity of 1500 V. Extra-low voltage must not exceed 50 V with AC voltage supply and 120 V with DC voltage supply. External networks must not exceed a capacity of 1000 V (starting from the connection point). Installation and operating work involving security and safety technology may be performed in a capacity that does not contradict that provided in the Security Act and Rescue Act. The occupation requires cooperation with specialists in related fields (building automatics, general construction, information and communication technologies (hereafter referred to as ICT), security and safety technology, etc.). Electrician, Level 5 has obtained the occupational skills of Electrician, Level 4. They fulfil a range of tasks in unforeseen circumstances and take responsibility for the results of their team.</p> <p>Similar professions            Electrician, Level 4            Distribution System Electrician, Level 4            Distribution System Electrician, Level 5            Automation Engineer, Level 4            Automation Engineer, Level 5            Security Systems Technician, Level 4            Security Systems Technician, Level 5            Electrical Engineer, Level 6</p>
<b>A.2 Tasks</b>
<p>A.2.1 Planning of work</p> <ol style="list-style-type: none"> <li>1. Operational planning</li> <li>2. Planning of resources and the work process</li> </ol> <p>A.2.2 Ensuring working environment safety</p> <ol style="list-style-type: none"> <li>1. Ensuring the safety of a work space</li> <li>2. Complying with and overseeing compliance with electricity and fire safety requirements, as well as task safety requirements</li> <li>3. Ensuring the safety of a work space</li> <li>4. Responding in the event of an occupational accident</li> </ol> <p>A.2.3 Cabling</p> <ol style="list-style-type: none"> <li>1. Organising cabling for low-voltage, information transmission, safety, security and technological systems</li> <li>2. Installing low-voltage, safety and security system and technological system cables</li> </ol>

#### A.2.4 Working in electricity distribution centres

1. Organisation of the installation and replacement of electricity distribution centres
2. Assembly, installation and replacement of electricity distribution centres

#### A.2.5 Installing low-voltage and extra-low voltage devices

1. Organising the installation and replacement of low-voltage and extra-low voltage devices
2. Installing and replacing low-voltage and extra-low voltage devices

#### A.2.6 Installing, connecting and tuning automatics devices

1. Organising the installation and connecting of automatics devices
2. Installation, connection and tuning of automatics devices

#### A.2.7 Verifying and documenting performance

1. Verifying their own work and the work of their employees through energy measurements
2. Formalising documentation

#### A.2.8 Operating electrical devices

1. Organising inspections and maintenance of electrical installations
2. Operating electrical installations
3. Documenting operations

#### A.2.9 Managing and supervising

1. Managing employees
2. Supervision

### A.3 Work environment and specific nature of work

Work is mainly conducted indoors. Contact with noise, dust and live devices is possible. Tasks are varied and may lead to physical complaints due to working in forced positions.

Following occupational and electricity safety standards, regulations and advice from foremen is required in order to avoid trauma. Wearing special protective clothing and protection gear may be required.

In emergency situations, work may take place on weekends and public holidays and at night. The work is mobile in nature and may require a driver's licence.

### A.4 Tools

Manual and specialty tools, mechanisms (e.g. forklifts) and measuring devices (testers, ammeters, etc.), IT hardware and specialist software.

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

The occupation requires physical endurance, dexterity and readiness to work at heights. Important qualities for the occupation are persistence, emotional stability, the ability to concentrate, adapt, analyse and organise and cooperation skills. Working with marked cables and wires assumes the ability to differentiate colours.

### A.6 Professional preparation

Electrician, Level 5 obtains their occupational skills through their work or completes Level 5 training, for which the occupational skills and work experience of Electrician, Level 4 are required.

### A.7 Most common occupational titles

Electrician, Operations Electrician

### A.8 Regulations governing profession

Working as an electrician requires a certificate of completion of a test of electrical danger awareness. Basis: Equipment Safety Act. Regulation of the Minister of Economic Affairs and Infrastructure 'Requirements for Operating Electrical Installations and for Electrical Work'.

Standard regulating the organisation of electrical work EVS-EN50110-1 'Operation of Electrical Installations'.

Regulations concerning work involving an open flame as set by Minister of the Interior regulation 'Requirements for Work Involving an Open Flame'.

Work safety regulations and workers' rights and responsibilities in creating and maintaining a safe work environment are set out in the Occupational Health and Safety Act.

## Part B COMPETENCY REQUIREMENTS

### B.1 Structure of occupation

Mandatory competences B.2.1-B.2.9 and recurring competence B.2.10 must be certified when applying for the qualification.

### B.2 Competences

#### MANDATORY COMPETENCES

<b>B.2.1 Planning of work</b>	<b>EstQF Level 5</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. compiles an action plan on the basis of technical documentation, including cooperation with related fields;</li> <li>2. plans materials and tools based on the task, using appropriate software and following the principles of cost accounting and preparing calculations;</li> <li>3. plans the necessary work force, time, stages of work and allocation of tasks on the basis of calculations.</li> </ol> <p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) principles of project management, applied software</li> <li>2) specialised software, including databases</li> </ol>	
<b>B.2.2 Ensuring working environment safety</b>	<b>EstQF Level 5</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. adheres to electricity, fire and occupational safety requirements as well as to task and device use requirements at every stage of work in order to avoid work accidents;</li> <li>2. informs employees of electricity, fire and task safety requirements as well as device user manuals and oversees their implementation in accordance with the procedures established in their company;</li> <li>3. secures a safe work environment, considering potential risks and taking precautions to mitigate said risks;</li> <li>4. responds in the event of an occupational accident in their area if responsibility;</li> <li>5. calls for professional help and reports the accident in accordance with the procedure established by the company.</li> </ol> <p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) principles of compiling risk analyses;</li> <li>2) basic knowledge of first aid.</li> </ol>	
<b>B.2.3 Cabling</b>	<b>EstQF Level 5</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. organises the work team's cabling activities in accordance with the tasks and complying with project guidelines and the manufacturer's instructions;</li> <li>2. installs the cables according to the installation technology, complying with the task and acting in accordance with project guidelines, the manufacturer's instructions and the requirements of electromagnetic compatibility.</li> </ol>	
<b>B.2.4 Working in electricity distribution centres</b>	<b>EstQF Level 5</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. organises the work of work teams when installing and replacing energy distribution centres and their components in accordance with the given tasks, guidelines and relevant standards;</li> <li>2. organises the work of work teams when assembling energy distribution centres, in accordance with standards of energy distribution centre assembly;</li> <li>3. assembles, installs and replaces energy distribution centres and their components using appropriate tools and techniques and following standards of energy distribution centre assembly.</li> </ol>	

<b>B.2.5 Installing low-voltage and extra-low voltage devices</b>	<b>EstQF Level 5</b>
Performance indicators: 1. organises the work of work teams when installing and replacing low-voltage and extra-low voltage devices in accordance with the project and the provisions of legal acts; 2. installs and replaces energy consumption devices and earthing and lightning protection devices in accordance with their task and the provisions of legal acts.	
<b>B.2.6 Installing, connecting and tuning automatics devices</b>	<b>EstQF Level 5</b>
Performance indicators: 1. organises the work of work teams when installing and connecting automatics devices in accordance with the installation scheme outlined in the project and their tasks; 2. installs automatics systems (including electric engine control, ventilation, actuator and sensor devices and measuring tools, but excluding specific systems) in accordance with the automatics project; 3. connects automatics systems control circuits and power circuits and tunes automatics systems (excluding specific systems) in accordance with the manufacturer's instructions, project guidelines and the customer's wishes.	
<b>B.2.7 Verifying and documenting performance</b>	<b>EstQF Level 5</b>
Performance indicators: 1. measures, using the appropriate measuring tools, the electro-technical indicators of the devices they and their work team install and makes sure they correspond with normative values; 2. compiles measurement protocols for the installation projects conducted by them and their team 3. documents changes occurring due to work situations using appropriate applications.	
<b>B.2.8 Operating electrical devices</b>	<b>EstQF Level 5</b>
Performance indicators: 1. organises operational activities (control and maintenance) of their work team in accordance with the operations plan and following the operational norms of electrical devices; 2. makes suggestions for the compiling of operation plans; 3. performs operations on electrical devices: performs switching and the measurements necessary to assess the state of electrical installations and accessories, plus maintenance work; 4. identifies faults and technical issues and potential solutions and lets the owner of the installation know about them; 5. records the data necessary for formalising a covered work act in accordance with the procedure established by the company. 6. formalises the stages of fulfilment of the operation plan in accordance with the procedure established by the company.	
<b>B.2.9 Managing and supervising</b>	<b>EstQF Level 5</b>
Performance indicators: 1. sets goals and initiates activities within their decision-making area; 2. oversees the implementation of planned activities and their correspondence with the goals set, where necessary implementing improvement measures; 3. provides timely and relevant feedback to and encourages and recognises employees; 4. introduces those being supervised to occupational safety guidelines and safe and effective work techniques and gives them clear instructions with which to fulfil their tasks; 5. follows and oversees compliance with safety regulations, the fulfilment of set tasks and quality of work, intervening in a timely manner where necessary; 6. supports those being supervised in coping with changes.	
Knowledge: 1) leadership basics (planning, organisation, leadership and checks, incl. feedback)	

## RECURRING COMPETENCES

<b>B.2.10 Recurring competences of Electrician, Level 5</b>	<b>EstQF Level 5</b>
Performance indicators:	

1. is goal-oriented and responsible, adhering to the legal requirements of the occupation (standards of installation projects and construction, building regulations of electrical devices, etc.);
2. implements in their work the basics of electrical engineering (applications of the Ohm and Kirchhoff laws in direct and alternating current circuits, principles of electrical machines and equipment, etc.);
3. uses resources for their intended purpose and efficiently;
4. follows environmental conservation guidelines, organises the collection all waste material and waste created during their work process;
5. uses tools, accessories and safety equipment in accordance with rules and guidelines;
6. creates a positive communication environment, expressing themselves logically and comprehensively;
7. advises clients on the maintenance and handling of devices, keeping in mind customer service rules
8. supports efficiency in teams and collaborates with representatives of related fields (coordinating approval, solving problems, etc.), using ICT solutions for networking;
9. maintains their qualifications and keeps up to date on technological developments;
10. uses ICT hardware and applications for digital management, following the requirements set by their company and data protection procedures, including principles of cyber security;
11. offers proposals to company management for improving ICT systems;
12. uses at least one foreign language at the B1 level to gather, share and exchange specialised information;
13. Uses a computer in their work according to the base modules and standard modules 'IT security', 'Cooperation online' and 'Databases' as described on the ECDL certificate (see Annex 2 'Computer skills').

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

<b>C.1 Information concerning compilation and certification of occupational qualification standard and reference to classification of occupations</b>	
1. ID of occupational qualification standard in register of occupational qualifications	07-16112017-2.2/3k
2. Occupational qualification standard compiled by:	Urmas Leitmäe, Elektritööde Ettevõtjate Liit Aulika Riisenberg, SA Innove Sergei Kuliš, Telia AS Ülo Kala, Walde AS Lembit Vali, Eesti Elektroenergeetika Selts Urmas Mahlapuu, TERA AS
3. Occupational qualification standard approved by:	Energy, Mining and Chemical Industry
4. No. of decision of Sectoral Council	8
5. Date of decision of Sectoral Council	16.11.2017
6. Occupational qualification standard valid until	07.11.2022
7. Occupational qualification standard version no.	3
8. Reference to International Standard Classification of Occupations (ISCO 08)	7412 Electrical Mechanics and Fitters
9. Reference to European Qualifications Framework (EQF)	5
<b>C.2 Occupational title in foreign language</b>	
English:	Electrician, EstQF Level 5
Russian:	Электрик
<b>C.3 Annexes</b>	
Lisa 1 <a href="#">Language skills level descriptions</a>	

Lisa 2 [Computer Skills](#)