

# OCCUPATIONAL QUALIFICATION STANDARD

## Railway Engineer, EstQF Level 6

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.

The occupational qualification standard of a level 6 railway engineer forms the basis for learning and training curricula, the assessment of the competence of persons and comparison of qualifications.

Occupational title	Level of Estonian Qualifications Framework (EstQF)
Railway Engineer, EstQF Level 6	6

Possible specialisation and titles on occupational certificate	
Specialisation	Title on occupational qualification certificate
Construction and operation of railway rolling stock	Railway Engineer, EstQF Level 6 Construction and operation of railway rolling stock
Construction and operation of tracks	Railway Engineer, EstQF Level 6 Construction and operation of tracks
Management of railway traffic	Railway Engineer, EstQF Level 6 Management of railway traffic
Construction and operation of automatic railway equipment and communication technology	Railway Engineer, EstQF Level 6 Construction and operation of automatic railway equipment and communication technology
Planning railway transport	Railway Engineer, EstQF Level 6 Planning railway transport
Construction and operation of railway overhead contact systems	Railway Engineer, EstQF Level 6 Construction and operation of railway overhead contact systems

## Part A DESCRIPTION OF WORK

<p><b>A.1 Description of work</b></p> <p>It is the job of railway engineers to plan, organise and ensure safe passenger and freight transport on railways. Railway engineers are technical and/or technological specialists or managers with higher education who work in companies and institutions that engage in railway infrastructure management, the provision of rail transport services and the operation of railway rolling stock (hereafter referred to as rolling stock) as well as the construction of railway facilities.</p> <p>Railway engineers are ready to work as part of an interdisciplinary team with railway construction, mechanical and transport engineers and logistics specialists.</p> <p>Railway Engineer, Level 6</p> <p>Railway Engineer, Level 6 plans and organises the operation of existing technologies and techniques in their field of specialisation (construction incl. supervision, management of railway traffic, etc.). The work involves resource allocation, management of the activities of employees and instruction.</p> <p>The work requires action in difficult and unforeseen situations as well as taking responsibility for the results of one's own work and that of other employees. Railway Engineer, Level 6 specialises in a narrower field of work (specialty) and occupation (area); see section A.2.</p> <p>Related standards:</p> <p>Certified Railway Engineer, Level 7</p>
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Chartered Railway Engineer, Level 8 See the descriptions and profiles of the occupational qualification levels of railway engineers in Annex 1.
<b>A.2 Tasks</b>
A.2.1 Ensuring the use of and synergy between railway infrastructure and rolling stock. A.2.2 Management.
<b>Specialised areas of work</b>
A.2.3 Construction and operation of railway rolling stock A.2.4 Management of railway traffic A.2.5 Construction and operation of tracks A.2.6 Construction and operation of automatic railway equipment and communication technology A.2.7 Planning railway transport A.2.8 Construction and operation of railway overhead contact systems
<b>Elective areas of work</b>
Construction and operation of railway rolling stock: A.2.9 Construction and operation of wagons A.2.10 Construction and operation of locomotives A.2.11 Construction and operation of multiple units  Construction and operation of tracks: A.2.12 Technical maintenance of tracks B.2.13 Construction management in the construction of tracks B.2.14 Supervision of the construction and operation of tracks B.2.15 Technical maintenance of railway bridges  Construction and operation of automatic railway equipment and communication technology: A.2.16 Construction management in the construction of automatic equipment and communication technology A.2.17 Technical maintenance of communication and security devices A.2.18 Supervision of the construction and operation of automatic equipment and communication technology  Construction and operation of railway overhead contact systems: A.2.19 Construction management in the construction of railway overhead contact systems A.2.20 Technical maintenance of overhead contact systems A.2.21 Supervision of the construction and operation of overhead contact systems
<b>A.3 Work environment and specific nature of work</b>
Railway engineers work indoors and/or outdoors. They are required to work outside of normal working hours when necessary. The work may be strenuous. They have to take traffic-related risks into account and exposure to noise, vibration and exhaust gases is possible. It is obligatory to comply with occupational health and safety and road safety requirements
<b>A.4 Tools</b>
Railway engineers primarily use information communication devices (computers, phones and radio stations) and intelligent transport systems (information, reservation and payment systems etc.), office equipment, software (word processing, spreadsheets, online communication, etc.), special calculation and drawing programmes and control and measuring instruments in their work.
<b>A.5 Personal qualities required for work: abilities and characteristics</b>
The work requires accuracy, the logical thinking of an engineer, assertiveness, spatial awareness, the ability to analyse, make decisions, take responsibility and adapt as well as willingness to cooperate and communicate.
<b>A.6 Professional preparation</b>
Obtaining the qualification of a level 6 railway engineer requires technical higher education, professional experience and the completion of further training.

### A.7 Most common occupational titles

Production manager, regional manager, technologist, specialist, chief mechanic, department or workshop manager, railway traffic manager, railway transport manager, railway safety manager.

### A.8 Regulations governing profession

Having an occupational qualification certificate allows one to act as a responsible specialist in the construction and maintenance of railway facilities in an area of activity recognised by the Ministry of Economic Affairs and Communications in accordance with the Building Code and the Railways Act.

## Part B COMPETENCY REQUIREMENTS

### B.1 Structure of occupation

For Railway Engineer, Level 6, competences B.2.1 and B.2.2, recurring competence B.2.22 and at least one competence from B.2.3-B.2.8 must be certified. In addition, at least one elective competence must be certified in the following specialisations:  
 Construction and operation of railway rolling stock: at least one competence from B.2.9-B.2.11 must be certified.  
 Construction and operation of tracks: at least one competence from B.2.12-B.2.15 must be certified.  
 Construction and operation of automatic railway equipment and communication technology: at least one competence from B.2.16-B.2.18 must be certified.  
 Construction and operation of railway overhead contact systems: at least one competence from B.2.19-B.2.21 must be certified.

### B.2 Competences

## MANDATORY COMPETENCES

<b>B.2.1 Ensuring the use of and synergy between railway infrastructure and rolling stock</b>	<b>EstQF Level 6</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. completes practical engineering tasks with previously developed methods and procedures and using relevant scientific and technological principles;</li> <li>2. verifies compliance with procedures of technological processes, ensuring the safe installation, operation and use of devices and systems and adherence to maintenance standards;</li> <li>3. participates in the design, development, construction and adoption of railway infrastructure and maintenance and repair facilities of rolling stock within the limits of their competence;</li> <li>4. uses diagnostic methods to determine the causes of problems and find solutions;</li> <li>5. defines, organises and utilises resources and takes into account costs, quality, safety and impact on the environment;</li> <li>6. utilises information and communication technology (hereafter referred to as ICT) tools and options for their intended purpose;</li> <li>7. complies with international and national legislation connected to railways, national and international agreements and safety requirements;</li> <li>8. solves the technological problems of railway transport: prepares timetables, organises railway transport and the work of stations and other subunits.</li> </ol> <p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) general science (economics, mathematics, physics);</li> <li>2) engineering (engineering graphics, electrical engineering, foundations of automation, measuring technology, technical mechanics);</li> <li>3) means and methods of production, material processing technologies, devices, jigs and measuring technology used on railways;</li> <li>4) knowledge of railway transport technology: the principles of the preparation of rail traffic and transport timetables, cooperation regulations of companies and technologies for stations and workshops;</li> </ol>	

- 5) the principles of the operation, technical diagnostics and maintenance of railway facilities and rolling stock;
- 6) general regularities of logistics and co-modal transport;
- 7) the facilities and structures of railway infrastructure, railway elements;
- 8) the construction and operating principles of railway communication and security devices;
- 9) the principles of the safe organisation of railway traffic;
- 10) the principles of telematic applications, interoperability and intelligent transportation systems in the railway sector;
- 11) risks on railways and methods for their assessment;
- 12) the general requirements of railway transport and traffic, railway maintenance, railway traffic safety and the organisation of its supervision;
- 13) the national technical requirements for rolling stock that moves on railways, railway structures and devices as well as railway signalling.

<b>B.2.2 Management</b>	<b>EstQF Level 6</b>
Performance indicators: <ol style="list-style-type: none"> <li>1. manages the activities of the team within their area of responsibility using appropriate management techniques;</li> <li>2. plans and decides on the volumes of activities, the schedule and budget on the basis of the task;</li> <li>3. gathers information on an ongoing basis, analyses activities, gives feedback and adjusts activities as necessary;</li> <li>4. prepares design documentation according to standards (reports, instructions and other organisational documents);</li> <li>5. monitors compliance with occupational safety requirements;</li> <li>6. passes on professional skills and knowledge and coordinates the work of those supervised.</li> </ol>	
Knowledge: <ol style="list-style-type: none"> <li>1) the principles of managing railway companies;</li> <li>2) the principles of quality, safety and environmental management.</li> </ol>	

## COMPETENCES RELATED TO SPECIALISATION

At least one competence from B.2.3-B.2.8 must be certified.

<b>Construction and operation of railway rolling stock</b>	
<b>B.2.3 Construction and operation of railway rolling stock</b>	<b>EstQF Level 6</b>
Performance indicators: <ol style="list-style-type: none"> <li>1. organises the construction, technical maintenance and repair of railway rolling stock on the basis of instructions;</li> <li>2. organises the technical fitting of railway rolling stock in accordance with the procedure established by the company;</li> <li>3. organises supervision and quality control in order to assess the compliance of the work with standards and requirements.</li> </ol>	

<b>Construction and operation of tracks</b>	
<b>B.2.4 Construction and operation of tracks</b>	<b>EstQF Level 6</b>
Performance indicators: <ol style="list-style-type: none"> <li>1. organises the construction and technical maintenance of tracks based on the project task and instructions;</li> <li>2. organises the supervision of construction and owner supervision in order to assess compliance with standards and requirements by means of measurements and tests.</li> </ol>	

<b>Management of railway traffic</b>	
<b>B.2.5 Management of railway traffic</b>	<b>EstQF Level 6</b>
Performance indicators: <ol style="list-style-type: none"> <li>1. organises rail traffic and shunting along the route and at stations, using automatic rail traffic equipment and communication technology and complying with instructions and rules;</li> <li>2. prepares train timetables and monitors the movement of trains according to the timetable;</li> </ol>	

3. assesses the compliance of railway safety and the execution of road safety plans.

### **Construction and operation of automatic railway equipment and communication technology**

#### **B.2.6 Construction and operation of automatic railway equipment and communication technology**

**EstQF Level 6**

Performance indicators:

1. plans and organises the construction and technical maintenance of automatic equipment and communication technology based on the project task and instructions;
2. organises the supervision of construction and owner supervision in order to assess compliance with standards and requirements by means of measurements and tests.

### **Planning railway transport**

#### **B.2.7 Planning railway transport**

**EstQF Level 6**

Performance indicators:

1. prepares rail traffic and transport timetables, the timetables of passenger trains and freight transport formation plans, rules and tariffs on the basis of contracts with customers, conditions for the use of roads and restrictions;
2. plans the logistics of railway transport based on contracts;
3. assesses the interaction between various parameters and their combined impact on traffic management, road safety and the environment (e.g. the impact of a construction project of security devices on road safety).

### **Construction and operation of railway overhead contact systems**

#### **B.2.8 Construction and operation of railway overhead contact systems**

**EstQF Level 6**

Performance indicators:

1. organises the construction and technical maintenance of railway overhead contact systems on the basis of the design and instructions;
2. organises the supervision of construction and owner supervision in order to assess compliance with standards and requirements by means of measurements and tests.

## **OPTIONAL COMPETENCES**

When specialising in the construction and operation of railway rolling stock it is obligatory to certify at least one of the competences from B.2.9-B.2.11.

When specialising in the construction and operation of tracks it is obligatory to certify at least one of the competences from B.2.12-B.2.15.

When specialising in the construction and operation of automatic railway equipment and communication technology it is obligatory to certify at least one of the competences from B.2.16-B.2.18.

When specialising in the construction and operation of railway overhead contact systems it is obligatory to certify at least one of the competences from B.2.19-B.2.21.

#### **B.2.9 Construction and operation of wagons**

**EstQF Level 6**

Performance indicators:

1. organises the construction, technical maintenance and repair of wagons on the basis of instructions;
2. organises the technical fitting of passenger carriages in accordance with the procedure established by the company;
3. organises supervision and quality control in order to assess the compliance of the work with standards and requirements.

Knowledge:

- 1) the construction of wagons of different types;
- 2) the principles of the construction of wagons;
- 3) the principles of the technical maintenance and repair system of wagons;
- 4) repair means, methods and materials;

5) methods of testing the constructions of wagons and non-destructive inspection.	
<b>B.2.10 Construction and operation of locomotives</b>	<b>EstQF Level 6</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. organises the construction, technical maintenance and repair of locomotives on the basis of instructions;</li> <li>2. plans and organises the circulation of locomotives and train drivers;</li> <li>3. organises the technical supply of locomotives with oil, fuel, sand, cooling water, lubricants and other means and materials in accordance with the procedure established by the company;</li> <li>4. organises supervision and quality control in order to assess the compliance of the work with standards and requirements.</li> </ol>	
<p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) the principles of the construction of locomotives;</li> <li>2) the principles of the technical maintenance and repair system of locomotives;</li> <li>3) repair means, methods and materials;</li> <li>4) the methods of the introduction of locomotives and non-destructive inspection.</li> </ol>	
<b>B.2.11 Construction and operation of multiple units</b>	<b>EstQF Level 6</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. organises the construction, technical maintenance and repair of multiple units according to instructions;</li> <li>2. plans and organises the circulation of multiple units and train drivers;</li> <li>3. organises the technical supply of multiple units with oil, fuel, sand, cooling water, lubricants and other means and materials in accordance with the procedure established by the company;</li> <li>4. organises supervision and quality control in order to assess the compliance of the work with standards and requirements.</li> </ol>	
<p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) the principles of the construction of multiple units;</li> <li>2) the principles of the technical maintenance and repair system of multiple units;</li> <li>3) repair means, methods and materials;</li> <li>4) the methods of the introduction of multiple units and non-destructive inspection.</li> </ol>	
<b>B.2.12 Technical maintenance of tracks</b>	<b>EstQF Level 6</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. organises the verification of the compliance of tracks, facilities and devices with requirements and the documentation of measurements and test results;</li> <li>2. plans and organises the technical maintenance and repair of tracks and facilities according to instructions;</li> <li>3. monitors compliance with road and occupational safety requirements, obtains the confirmation and permits necessary for the work;</li> <li>4. organises the appropriate documentation of technical maintenance and repair work and the transfer and receipt of work;</li> <li>5. prepares the documentation of technical maintenance and repair work as well as material procurement and tenders.</li> </ol>	
<p>Knowledge:</p> <ol style="list-style-type: none"> <li>1) the types of track superstructure and embankments, the principles of their use, repair and technical maintenance;</li> <li>2) the technologies of the technical maintenance and repair of tracks, the materials and devices used;</li> <li>3) the maintenance standards for tracks, facilities and devices; road and environmental safety requirements; quality assurance and control systems;</li> <li>4) the organisation and technology of snow removal;</li> <li>5) relevant laws, standards and instructions;</li> <li>6) the principles of accounting.</li> </ol>	
<b>B.2.13 Construction management in the construction of tracks</b>	<b>EstQF Level 6</b>
<p>Performance indicators:</p> <ol style="list-style-type: none"> <li>1. assesses the necessity for work, checks the source documentation, calculates work volumes and prepares the work schedule and the technological design, obtains the necessary confirmation and permits;</li> <li>2. prepares the material procurement and tender documentation of the work;</li> </ol>	

3. organises the preparation of the construction site and work, the logistics of materials and mechanisms, the execution of the work, quality control, project management and accounting;
4. monitors compliance with the requirements of the maintenance of the construction site and railway, environmental, occupational health and safety, instructs workers as they work on the site;
5. organises construction meetings, inspections, measurements and tests and the appropriate documentation and the transfer of work.

**Knowledge:**

- 1) the types of track superstructure and embankments, the principles of their use, technical maintenance and construction;
- 2) the technologies of the technical maintenance and construction of tracks, the mechanisms, materials and devices used;
- 3) the maintenance standards for tracks, facilities and devices; road and environmental safety requirements; quality assurance and control systems;
- 4) relevant laws, standards and instructions;
- 5) the principles of preparing a construction management project;
- 6) project management software;
- 7) the principles of accounting.

**B.2.14 Supervision of the construction and operation of tracks**

**EstQF Level 6**

**Performance indicators:**

1. checks the completeness and sufficiency of the construction project or the description of work, the quality and the suitability of the technology on the basis of the monitoring programme;
2. verifies whether the materials and products used and the devices meet the requirements and records the volumes and quality of work completed;
3. verifies whether the construction work and materials comply with the construction project, the agreed conditions and quality and informs the customer of any deviations;
4. verifies whether technical construction documents are completed properly and in time;
5. checks and accepts covered work and carries out inspections on parts of the facility;
6. participates in work meetings, the work of the acceptance committee of work or parts of work and granting authorisation;
7. verifies whether instructions for use and other necessary documentation comply with legislation and standards.

**Knowledge:**

- 1) the rights and obligations of the person exercising owner supervision;
- 2) the quality requirements of construction work;
- 3) the requirements of a construction project;
- 4) the types of track superstructure and embankments, the principles of their use, technical maintenance and construction;
- 5) the technologies of the technical maintenance and construction of tracks, the mechanisms, materials and devices used;
- 6) the principles of measuring the parameters of tracks, devices and facilities and analysing them; requirements of documents;
- 7) the maintenance standards for tracks, facilities and devices; road and environmental safety requirements; quality assurance and control systems;
- 8) relevant legislation, standards and instructions.

**B.2.15 Technical maintenance of railway bridges**

**EstQF Level 6**

**Performance indicators:**

1. plans and organises the verification of the compliance of railway bridges with requirements and the documentation of measurements and test results, while adhering to the maintenance plan for railway bridges;
2. plans, manages and organises the technical maintenance and repair of railway bridges according to work volumes, technology, the schedule and the budget;
3. prepares or commissions the work project, obtains the confirmation and permits necessary for the work;
4. monitors the ensuring of safety and occupational health, analyses incidents and instructs employees;
5. organises the inspection of the work and materials, appropriate documentation and the transfer of the work;



6. prepares the documentation of the technical maintenance of railway bridges and material procurement and tenders.

Knowledge:

- 1) the types of railway bridges, the principles of their use, repair and technical maintenance, the technologies, materials and devices used;
- 2) the technologies of the technical maintenance and repair of tracks, the materials and devices used;
- 3) the maintenance standards for railway bridges, tracks, facilities and devices; road and environmental safety requirements; quality assurance and control systems;
- 4) relevant laws, standards and instructions;
- 5) the requirements of construction projects and the documentation of work;
- 6) the principles of accounting.

**B.2.16 Construction management in the construction of automatic equipment and communication technology**

**EstQF Level 6**

Performance indicators:

1. assesses the necessity for work, checks the source documentation, calculates work volumes and prepares the work schedule and the technological design, obtains the necessary confirmation and permits;
2. prepares the documentation of the technical maintenance and repair work of automatic equipment and communication technology as well as material procurements and tenders;
3. organises the preparation of the construction site of automatic equipment and communication technology and the work, the logistics of materials and mechanisms, the execution of the work, quality control, project management and accounting;
4. monitors compliance with the requirements of the maintenance of the construction site and railway, environmental, occupational and health safety, instructs workers as they work on the site;
5. organises construction meetings, inspections, measurements and tests, appropriate documentation and the transfer of work.

Knowledge:

- 1) the types of automatic equipment and communication technology and the principles of their use, construction and technical maintenance;
- 2) the technology of automatic equipment and communication technology; mechanisms, materials and devices used on site;
- 3) the maintenance standards for automatic equipment and communication technology, facilities and devices; road and environmental safety requirements; quality assurance and control systems;
- 4) relevant laws, standards and instructions;
- 5) the principles of preparing a construction management project;
- 6) project management software;
- 7) the principles of accounting.

**B.2.17 Technical maintenance of communication and security devices**

**EstQF Level 6**

Performance indicators:

1. organises the verification of the compliance of automatic equipment and communication technology, facilities and devices with requirements and the documentation of measurements and test results;
2. plans and organises the technical maintenance and repair of automatic equipment and communication technology and facilities on the basis of the schedule and budget;
3. monitors compliance with electrical, road and occupational safety requirements, instructs employees;
4. obtains the confirmation and permits necessary for the work, while complying with relevant legislation;
5. organises the appropriate documentation of technical maintenance and repair work and the transfer and reception of work, while adhering to standards and instructions;
6. prepares the documentation of technical maintenance and repair work as well as material procurement and tenders.

Knowledge:

- 1) the types of automatic equipment and communication technology and the principles of their use, repair and technical maintenance;
- 2) the technologies of the technical maintenance and repair of automatic equipment and communication technology, the materials and devices used;



3) the maintenance standards for automatic equipment and communication technology, facilities and devices; road and environmental safety requirements; quality assurance and control systems; 4) relevant legislation, standards and instructions; 5) the principles of accounting.	
<b>B.2.18 Supervision of the construction and operation of automatic equipment and communication technology</b>	<b>EstQF Level 6</b>
Performance indicators: 1. checks the completeness and sufficiency of the construction project or description of overhead contact system work as well as the quality and the suitability of the technology; 2. prepares a monitoring programme and verifies whether electrical safety requirements are being adhered to; 3. verifies whether the materials and products used and the devices meet the requirements and records the volumes and quality of work completed; 4. verifies whether the construction work and materials comply with the construction project, the agreed conditions and quality and informs the customer of any deviations; 5. verifies whether technical construction documents are completed properly and in time; 6. checks and accepts covered work and carries out inspections on parts of the facility; 7. participates in work meetings and the work of the acceptance committee of work or parts of work; 8. checks instructions for use and other necessary documentation.	
Knowledge: 1) the rights and obligations of the person exercising owner supervision; 2) the quality requirements of construction work; 3) the requirements of a construction project; 4) the types of communication and security devices and the principles of their use, technical maintenance and construction; 5) the technologies of the technical maintenance and construction of the overhead contact systems of communication and security devices, the mechanisms, materials and devices used; 6) the principles of measuring the parameters of communication and security devices and facilities and analysing them; the requirements for documents; 7) the maintenance standards for communication and security devices, facilities and devices; electrical, road and environmental safety requirements; quality assurance and control systems; 8) relevant laws, standards and instructions.	
<b>B.2.19 Construction management in the construction of overhead contact systems</b>	<b>EstQF Level 6</b>
Performance indicators: 1. assesses the necessity for work, checks the source documentation, calculates work volumes and prepares the work schedule and the technological design, obtains the necessary confirmation and permits; 2. prepares the documentation of the technical maintenance and repair work of overhead contact systems as well as material procurements and tenders; 3. organises the preparation of the construction site of overhead contact systems and the work, the logistics of materials and mechanisms, the execution of the work, quality control, project management and accounting; 4. monitors compliance with the requirements of the maintenance of the construction site and railway, environmental, occupational and health safety, instructs workers as they work on the site; 5. organises construction meetings, inspections, measurements and tests, appropriate documentation and the transfer of work.	
Knowledge: 1) the types of overhead contact systems and the principles of their use, construction and technical maintenance; 2) the technology of the construction of overhead contact systems; mechanisms, materials and devices used on site; 3) the maintenance standards for overhead contact systems, facilities and devices; road and environmental safety requirements; quality assurance and control systems; 4) relevant laws, standards and instructions; 5) the principles of preparing a construction management project; 6) project management software; 7) the principles of accounting.	
<b>B.2.20 Technical maintenance of overhead contact systems</b>	<b>EstQF Level 6</b>
Performance indicators:	

1. organises the operation of the electrical devices of overhead contact systems on the basis of instructions;
2. organises the verification of the compliance of overhead contact systems, facilities and devices with requirements and the documentation of measurements and test results;
3. plans and organises the technical maintenance and repair of overhead contact systems and facilities, including the determination of work volumes, the schedule and the budget;
4. complies with road and occupational safety requirements, instructs the employees in complying with them;
5. obtains the confirmation and permits necessary for the work;
6. organises the appropriate documentation of technical maintenance and repair work and the transfer and receipt of work;
7. prepares the documentation of technical maintenance and repair work as well as material procurement and tenders.

**Knowledge:**

- 1) the types of overhead contact systems and the principles of their use, repair and technical maintenance;
- 2) the technologies of the technical maintenance and repair of overhead contact systems, the materials and devices used;
- 3) the maintenance standards for overhead contact systems, facilities and devices; road and environmental safety requirements; quality assurance and control systems;
- 4) relevant laws, standards and instructions.

<b>B.2.21 Supervision of the construction and operation of overhead contact systems</b>	<b>EstQF Level 6</b>
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**Performance indicators:**

1. checks the completeness and sufficiency of the construction project or description of overhead contact system work as well as the quality and the suitability of the technology;
2. verifies whether electrical safety requirements are being adhered to on the basis of a previously prepared monitoring programme;
3. verifies whether the materials and products used and the devices meet the requirements and records the volumes and quality of work completed;
4. verifies whether the construction work and materials comply with the construction project, the agreed conditions and quality and informs the customer of any deviations;
5. verifies whether technical construction documents are completed properly and in time;
6. checks and accepts covered work and carries out inspections on parts of the facility;
7. participates in work meetings and the work of the acceptance committee of work or parts of work;
8. verifies whether instructions for use and other documents meet the requirements.

**Knowledge:**

- 1) the rights and obligations of the person exercising owner supervision;
- 2) the quality requirements of construction work;
- 3) the requirements of a construction project;
- 4) the types of overhead contact systems and the principles of their use, technical maintenance and construction;
- 5) the technologies of the technical maintenance and construction of overhead contact systems, the mechanisms, materials and devices used;
- 6) the principles of measuring the parameters of overhead contact systems, devices and facilities and analysing them; requirements of documents;
- 7) the maintenance standards for overhead contact systems, facilities and devices; electrical, road and environmental safety requirements; quality assurance and control systems;
- 8) relevant laws, standards and instructions.

## RECURRING COMPETENCES

<b>B.2.22 Recurring competences of Railway Engineer, Level 6</b>	<b>EstQF Level 6</b>
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**Performance indicators:**

1. is guided by the engineer's professional ethics and code of conduct in their activities (see Annex 2);
2. acts responsibly and purposefully in accordance with occupational health and safety and road safety requirements;
3. understands regulations (EU directives, standards, instructions, etc.) and institutions (e.g. the Technical Regulatory Authority and the European Union Agency for Railways) associated with the profession;

4. takes part in teamwork, understands their role in the team, acts to achieve the best possible outcome collectively, creates a positive communication environment;
5. chooses a manner of communication corresponding to the target audience (colleagues, customers, specialists from a related field), provides information clearly, logically and in a manner understandable to the target audience;
6. maintains and develops their qualifications and keeps up to date on technological innovations;
7. uses a computer in their work according to the level required by the base modules and standard module 'Presentation' (see Annex 3 'Computer skills').

## 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	12-29042022-1.8/7k
2. Occupational qualification standard compiled by:	Arvo Smiltinš, Leonhard Weiss Baltic Holding OÜ Urmas Lükki, Edelaraudtee Infrastruktuuri AS kutsekomisjon Kristina Fuks-Kuus, Tehnilise Järelevalve Amet Rita Ojala, Edelaraudtee Infrastruktuuri AS Anto Looken, SA Raudteekutsed Tarvi Viisalu, AS Eesti Raudtee
3. Occupational qualification standard approved by:	Transport and Logistics
4. No. of decision of Sectoral Council	23
5. Date of decision of Sectoral Council	29.04.2022
6. Occupational qualification standard valid until	28.04.2023
7. Occupational qualification standard version no.	7
8. Reference to International Standard Classification of Occupations (ISCO 08)	2144 Mechanical Engineers
9. Reference to European Qualifications Framework (EQF)	6
<b>C.2 Occupational title in foreign language</b>	
English:	Railway Engineer, EstQF Level 6
Russian:	Инженер железнодорожного транспорта
Russian:	Инженер путей сообщения
<b>C.3 Annexes</b>	
Lisa 1 <a href="#">Descriptions and profiles of occupational qualification levels of railway engineers</a>	
Lisa 2 <a href="#">Engineer's Professional Ethics and Code Of Conduct</a>	
Lisa 3 <a href="#">Computer Skills</a>	