



Euroopa Liit  
Euroopa Sotsiaalfond



Eesti tuleviku heaks



SIHTASUTUS  
Kutsekoda

ESF programm „Kutsete süsteemi arendamine“

## Occupational standard

### Biomedical (Laboratory) Scientist, level 6

**The occupational standard for biomedical laboratory scientist, level 6 initial occupational qualification** is the basis for drafting of curricula and training programmes meeting the requirements of labour market and evaluation of competence of the people.

<b>Occupational qualification title</b>	<b>Estonian qualifications framework (EstQF) level</b>
<i>Biomedical (Laboratory) Scientist, level 6</i>	6

## Part A

### JOB DESCRIPTION

#### A.1 Job description

A biomedical laboratory scientist is a specialist working at laboratories where general condition of the organism and structure and functions of tissues, organs, cells and molecules, microbiological systems and other factors affecting human organism are being studied. It is the job of a biomedical laboratory scientist to perform laboratory studies relying on evidence-based medicine that show patient's state of health.

A biomedical laboratory scientist manages the preanalytic stage of analytical processes and gives advice on preanalytic issues, performs and manages analytic measurements and technical procedures. A biomedical laboratory scientist independently completes a routine laboratory study and releases study results while taking personal responsibility for its quality. The job of a biomedical laboratory scientist co-operates both with laboratory workers and workers of other professional fields. They develop their professional skills continuously throughout their career.

There are three occupational qualifications on the field of biomedical laboratory scientist:

Biomedical (laboratory) scientist, level 6 initial occupational qualification has received professional training for starting work in a health care laboratory and their tasks are performing high-quality laboratory studies, instructing patients/customers and preparing them for laboratory analyses, assuring the safety of the patient in the laboratory and throughout the analysis, assuring the safety of themselves and environment, organizing their professional activity in co-operation with other specialists, developing the laboratory work and its quality and following code of professional ethics. They develop their professional skills continuously throughout their career.

Biomedical (laboratory) scientist, level 6 is a specialist with former work experience who can instruct their colleagues and trainees if necessary.

Senior biomedical (laboratory) scientist, level 7 is a specialist with former work experience who, in addition to performing studies in a health care laboratory, is involved in development activities of the laboratory, participates in the development and testing of new methods and trains health care workers. They develop their professional knowledge through continuous professional development.

#### A.2 Units

##### A.2.1 Organizing and performing laboratory work

1. Using laboratory equipment.
2. Maintenance.
3. Preparing equipment.
4. Organizing and managing teamwork.

##### A.2.2 Performing laboratory studies

1. Taking test samples from patients.
2. Performing routine laboratory studies.

##### A.2.3 Assuring the quality of laboratory studies

1. Quality assurance.
2. Assuring the correctness of test results.

**A.2.4 Training and counselling health care workers**

1. Informing health care workers of the work arrangement of laboratory.
2. Notifying healthcare workers of reference values and decision limits of laboratory tests.
3. Notifying healthcare workers of conditions that affect analysis results.
4. Supervising trainees.

**A.3 Working environment and specific aspects of work**

In their work, biomedical laboratory scientist comes in contact with biological materials, chemical substances and physical risk factors. They work with medical laboratory equipment. The job requires the use of protective clothing and personal protective equipment. The job includes infection- and chemical related risks. Work with computers and other devices can also include potential health risks.

**A.4 Tools**

Medical laboratory equipment and tools, computers and information systems.

**A.5 Personal characteristics necessary for this job: abilities and personality traits**

Stress tolerance, correctness, preciseness, analytical abilities, dutifulness, willingness and ability to learn, sense of responsibility.

**A.6 Occupational training**

Biomedical laboratory scientists are mostly persons with professional higher education and former work experience.

**A.7 Possible job titles**

Biomedical laboratory scientist.

## Part B

### COMPETENCE REQUIREMENTS

#### B.1. The structure of the occupational qualification

All competences must be certified when applying for this occupational qualification.

#### B.2 Competences

##### Obligatory competences

B.2.1 Organizing and performing laboratory work	EstQF level 6
<p><u>Performance indicators:</u></p> <ol style="list-style-type: none"> <li>1) uses existing laboratory equipment while taking into account the specifics of laboratory work (e.g. hematology, microbiology, pathology, etc.);</li> <li>2) takes care of the device according to user manual and monitors the repair works of laboratory equipment;</li> <li>3) prepares equipment for studies (e.g. adjusting, calibrating, etc.);</li> <li>4) participates in teamwork, advises colleagues on taking test samples (e.g. choice of sample container, following sample taking requirements, etc.) and notifies colleagues of interferences of test results, critical values and noncompliance of sample material.</li> </ol>	
<p><u>Supporting knowledge:</u></p> <ol style="list-style-type: none"> <li>1) principles of methods of determination and work principles of most common laboratory equipment;</li> <li>2) risk analysis;</li> <li>3) basics of teamwork;</li> <li>4) basics of communication psychology.</li> </ol>	
<p><u>Assessment method(s):</u> Self-analysis, interview.</p>	
B.2.2 Performing laboratory studies	EstQF level 6
<p><u>Performance indicators:</u></p> <ol style="list-style-type: none"> <li>1) takes test samples from patients (e.g. capillary blood, venous blood, microbiological scrapings, etc.);</li> <li>2) performs routine laboratory studies according to manual; assesses the results according to vital margins and relevant quality checking systems; formalizes and issues responses according to established order; prepares and performs more specific laboratory studies (e.g. assessing samples, independent work with analyzers, etc.).</li> </ol>	
<p><u>Supporting knowledge:</u></p> <ol style="list-style-type: none"> <li>1) time limits and procedures for issuing results of laboratory studies in the specific laboratory;</li> <li>2) preanalytical, analytical and postanalytical factors affecting the results of laboratory studies.</li> </ol>	
<p><u>Assessment method(s):</u> Self-analysis, interview.</p>	
B.2.3 Assuring the quality of laboratory studies	EstQF level 6
<p><u>Performance indicators:</u></p>	

- 1) checks the quality of studies they have performed and assesses the results according to quality control evaluation criteria;
- 2) assures the quality and reliability of their laboratory test results, according to instructions.

Assessment method(s):

Self-analysis, interview.

**B.2.4 Training and counseling health care workers**

**EstQF level 6**

Performance indicators:

- 1) notifies health care workers of the work arrangement of laboratory concerning the preanalytical, analytical and postanalytical stage, according to instructions;
- 2) notifies healthcare workers of reference values and decision values of laboratory studies by using proper ways of communication and following instructions;
- 3) notifies healthcare workers of conditions that affect analysis results by using proper ways of communication and following instructions;
- 4) supervises trainees according to instructions.

Supporting knowledge:

- 1) Supervision.

Assessment method(s):

Self-analysis, interview or documented.

**Transversal competences**

**B.2.5 Biomedical (laboratory) scientist, level 6 transversal competence**

**EstQF level 6**

Performance indicators:

- 1) uses official language in their work on proficiency level B2 (Annex 1);
- 2) uses computer in their work on skill level AO1-4 and 7 and 12 (Annex 2), and is capable of using professional software;
- 3) follows work safety and work environmental requirements (e.g. biological, chemical and physical requirements, etc.); uses personal protective equipment, special equipment and devices to avoid harming themselves, colleagues and environment;
- 4) documents their work process according to manuals and by using proper professional terminology;
- 5) provides first aid;
- 6) follows data protection requirements in their work;
- 7) follows legislation related to their professional field;
- 8) follows the code of professional ethics;
- 9) uses correct professional terminology; chooses and uses proper ways of communication according to situation, handles different conflict situations; interacts with people politely;
- 10) handles stress, fallbacks and uncertain situations, notifies those involved of existing problems and provides possible solutions; remains constructive in stressful situations; keeps their work and private life in balance; has an understanding attitude for criticism and can learn from it;
- 11) clearly expresses their opinion, does not hide information and can point out important discussion points;
- 12) uses materials and means in an economic and efficient manner; observes the work process and assures that deadlines and stages would be followed;
- 13) uses area specific knowledge and experience in their work;
- 14) supports the concept of the organization in their activities.

Supporting knowledge:

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- 1) professional and personal development;
- 2) anatomy-physiology;
- 3) basics of laboratory work;
- 4) work environment of a laboratory;
- 5) biochemistry, molecular and cellular biology;
- 6) pathology;
- 7) microbiology;
- 8) clinical pathology;
- 9) clinical chemistry and hematology;
- 10) pharmacology, toxicology;
- 11) genetics, molecular diagnostics;
- 12) public health;
- 13) communication psychology;
- 14) general psychology;
- 15) philosophy and ethics;
- 16) professional English;
- 17) Latin;
- 18) computer use, databases;
- 19) research methodology;
- 20) management studies;
- 21) project management, basics of economy;
- 22) quality management in a laboratory.

Assessment method(s):

Integrated with assessment of other competences specified in the occupational standard.

## Part C

### GENERAL INFORMATION AND ANNEXES

<b>C.1 Information on the preparation and approval of the occupational standard, on the body awarding occupational qualifications, and reference to the location of the occupational standard in classifications</b>	
1. Designation of the occupational standard in the register of occupational qualifications	05-23052013-2.2/6k
2. <i>The occupational standard is compiled by:</i>	Annike Koorts, <i>The North Estonia Medical Centre</i> Jane Kurm, <i>The North Estonia Medical Centre</i> Piret Mängel, <i>Tartu University Hospital</i> Aivar Orav, <i>Association of Estonian Biomedical Laboratory Scientists</i> Mare Remm, <i>Tartu Health Care College</i> Monyca Sepp, <i>Pärnu Hospital</i>
3. The occupational standard is approved by:	Tervishoiu ja Sotsiaaltöö Kutsenõukogu
4. No. of the decision of the Sectoral Council	14
5. Date of the decision of the Sectoral Council	23.05.2013
6. The occupational standard is valid until (date)	22.05.2018
7. Occupational standard version No.	6
8. Reference to the Classification of Occupations (ISCO 08)	32
9. Reference to the level in the European Qualifications Framework (EQF)	6
<b>C.2 Title of occupational qualification in foreign languages</b>	
In Estonian Bioanalüütik	
In Finnish Bioanalyttikko	
<b>C.3 Annexes</b>	
Annex 1 Language skills	
Annex 2 Computer skills	