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MINISTER
OF EDUCATION, SCIENCE AND SPORT OF THE REPUBLIC OF LITHUANIA

ORDER
ON APPROVAL OF THE DESCRIPTOR OF THE STUDY FIELD OF MEDICINE

19 October 2022 No V-1666
Vilnius

In accordance with Paragraph 11 of Article 53 of the Law on Higher Education and Research of the Republic of Lithuania:

1. I approve the Descriptor of the Study Field of Medicine (hereinafter referred to as the "Descriptor") (enclosed).

2. I recognise Order No V-797 of the Minister of Education and Science of the Republic of Lithuania of 23 July 2015 "On Approval of the Descriptor of the Study Field of Medicine", with all amendments and additions, as invalid.

3. This Order shall enter into force on 1 January 2023.

4. I determine that the higher education institutions have to adjust their study programmes to the Descriptor until 1 September 2023.

Minister of Education, Science and Sport Jurgita Šiugždinienė

APPROVED BY
Order No V-1666 of the Minister of Education, Science and Sport
of the Republic of Lithuania of 19 October 2022

DESCRIPTOR OF THE STUDY FIELD OF MEDICINE

CHAPTER I
GENERAL PROVISIONS

1. The Descriptor of the study field of Medicine (hereinafter referred to as the "Descriptor") regulates the special requirements for the study programmes in the study field of Medicine (G01) that belongs to the group of study fields of Health Sciences (G). The Descriptor regulates the study field of Medicine (hereinafter referred to as the "field of Medicine") in the scope not covered by the General Requirements for the Provision of Studies approved by Order No V-1168 of the Minister of Education, Science and Sport of the Republic of Lithuania of 30 December 2016 "On Approval of Descriptor of General Requirements for the Provision of Studies".

2. The Descriptor has been prepared in accordance with the Law on Medical Practice of the Republic of Lithuania, the Law on Health Care Practice of the Republic of Lithuania, Lithuanian medical standard MN 7:2022 "Medical Doctor", approved by the Order No V-930 of the Minister of Health of the Republic of Lithuania of 9 May 2022 "On the Approval of Lithuanian Medical Standard MN 7:2022 'Medical Doctor'", Lithuanian medical standard MN 68:2018 "Medical Biologist", approved by Order No V-169 of the Minister of Health of the Republic of Lithuania of 4 March 2008 "On the Lithuanian Medical Standard MN 68:2018 'Medical biologist'", Lithuanian medical standard MN 156:2019 "Medical Geneticist", approved by Order No V-400 of the Minister of Health of the Republic of Lithuania of 9 April 2019 "On the Lithuanian Medical Standard MN 156:2019 'Medical Geneticist'". It also takes into account the Law on Recognition of Regulated Professional Qualifications of the Republic of Lithuania, the standards of the World Federation for Medication Education (*World Federation for Medication Education. Basic Medical Education, WFME Global Standards for Quality Improvement in Medical Education. 2015*), the Tuning Project (Medicine) document ("Learning outcomes/competences for Undergraduate Medical Education in Europe"), the *European Federation of Clinical Chemistry and Laboratory Medicine Syllabus for Postgraduate Education and Training for Specialists in Laboratory Medicine* and the *European Registered Clinical Laboratory Geneticist Core Curriculum*.

3. The requirements of the Descriptor apply to integrated university study programmes in the field of Medicine for the training of medical doctors, and to second cycle study programmes for the training of medical biologists and medical geneticists. All study programmes in the field of Medicine may be organised only as full-time studies.

4. Graduates of integrated study programmes in the field of Medicine for the training of medical doctors shall be awarded a Master's degree in Health Sciences corresponding to the seventh level of the Lithuanian Qualifications Framework and the European Qualifications Framework for Lifelong Learning, and the second level of the European Qualifications Framework in the European Higher Education Area, and also shall be awarded the qualification of a medical doctor as attested by the Master's diploma and the diploma supplement issued by the higher education institution. The diploma and the diploma supplement must be accompanied by a certificate of clinical practice (internship) indicating the medical doctor qualification awarded. Graduates of second cycle studies for the training of medical biologists and medical geneticists are awarded a Master's degree in Health Sciences and a qualification of a medical biologist or medical geneticist, as attested by a Master's diploma and a diploma supplement issued by the higher education institution.

5. Medical studies cannot be provided as studies within the study programmes classified under two study fields and within interdisciplinary study programmes.

6. There are no special requirements established in the Descriptor for the people who want to be admitted to integrated study programmes for the training of medical doctors. It is

recommended that second cycle study programmes for the training of medical biologists and medical geneticists should be open to holders of a Bachelor's degree who meet the admission requirements set by the higher education institution, and that holders of a professional Bachelor's degree must have completed a university bridging courses.

7. People who have acquired education and/or qualifications under foreign education programmes shall be admitted after the assessment and recognition of qualifications acquired abroad in accordance with the procedure established by the Government.

8. Study programmes for the training of medical doctors must meet the following requirements:

8.1. the total duration of the integrated studies must be at least 360 study credits and the duration must be at least 6 years or 5 500 hours of theoretical and practical training at the university and/or at a clinical base of the university under the supervision of the university's teachers;

8.2. the higher education institution must determine the relationship between contact work and independent work, taking into account the specific characteristics of the studies. The student's independent work must account for at least 50 per cent of the volume of the study programme;

8.3. the total duration of the clinical practice (internship) during integrated studies must be at least 30 study credits;

8.4. the integrated study programme is completed after an assessment of whether the graduate has acquired sufficient theoretical and clinical knowledge, practical skills and clinical experience, i.e., completed the clinical medical practice (internship), defended the final thesis, and passed the final examination(s) of the study programme. A minimum of 15 credits shall be allocated for the preparation and defence of the final thesis.

9. Study programmes for the training of medical biologists and medical geneticists must meet the following requirements:

9.1. second cycle studies must be at least 120 credits and the duration must be at least 2 years or 1 300 hours of theoretical and practical training at the university and/or at a clinical base of the university under the supervision of the university's teachers;

9.2. second cycle study programmes shall be completed after an assessment of whether the graduate has acquired sufficient theoretical knowledge and practical skills and has defended the final thesis. A minimum of 15 credits shall be allocated for the preparation and defence of the final thesis.

10. Graduates of an integrated study programme in the field of Medicine shall be entitled to enrol in a residency programme designed to prepare them for the independent practice of medical specialist.

11. Graduates of study programmes in the field of Medicine may pursue doctoral studies in the fields of Medicine and Health Sciences in Lithuanian or foreign research and study institutions.

CHAPTER II
CONCEPT AND SCOPE OF THE STUDY FIELD

12. The subject of medical studies is a set of principles and procedures aimed at preventing, diagnosing, analysing and treating diseases and health disorders in order to maintain overall human health.

13. The main aim of this field of study is to provide theoretical knowledge and practical skills, to develop an understanding of the nature of diseases and health disorders, developmental processes, molecular and cellular mechanisms, structure and functions of the human body and psyche, and the maintenance and restoration of health, as well as to develop socio-emotional competences and the ability to assess clinical data in order to make a diagnosis and to take the appropriate actions.

14. The skills developed during the studies include the performance and conduct of medical procedures, management of critical situations, leadership, self-awareness, self-control, positive communication with patients, their relatives and healthcare professionals, monitoring of the

patient's health, assessment of the patient's psychological, physical and emotional state, provision of psychological first aid, development of professional responsibility to the individual and the community, assessment of samples to determine the origin, status and course of pathology (disease).

15. The training of medical doctors is divided into stages (this Descriptor sets out the requirements for the first stage only):

15.1. integrated studies in the field of Medicine with clinical practice (internship) that is an integral part of the study programme, leading to the Master's degree in Health Sciences and the professional qualification of a medical doctor;

15.2. medical residency - professional studies for a medical doctor seeking to acquire or change the professional qualification of a doctor as it pertains to the type of medical practice and to prepare for the independent practice of a medical specialist;

15.3. lifelong learning - the development of a professional qualification in the practice of medicine for the purpose of continuing to acquire additional knowledge, skills or competences in the practice of medicine or in the relevant specialised practice of medicine, and to enhance social and emotional competences.

16. The activities of health care professionals - doctors, medical biologists and medical geneticists - trained under medical degree programmes are licensed.

17. An integrated study programme for the training of medical doctors must include the following content elements:

17.1. the theoretical component (knowledge, skills and attitudes), which includes the development of general professional and behavioural competences, the development of social and emotional competences, the development of mental health literacy, the development of theoretical knowledge of fundamental medicine, which enables the understanding of the molecular, cellular, anatomical, physiological and psychological features of a healthy and sick person, and of the individual's interaction with the physical and social environment, the development of values and related attitudes, the development of the principles of human rights, the development of medical knowledge relevant to the course of treatment of diseases and health disorders and to the variety of health care problems, as well as critical thinking, health care implementation strategies and managerial processes;

17.2. the practical component, which includes training in the methods of the profession - genetic, chemical, physical diagnosis, treatment and prevention of the causes of diseases and health disorders;

17.3. knowledge and application of bioscientific research methodology;

17.4. the development of general competences - the training of a medical professional who is empathetic, collaborative, able to communicate constructively, matter-of-factly and respectfully with patients, their relatives and colleagues in a variety of situations, able to analyse and reflect critically on their practical professional activities, able to manage stress and conflicts, and who is a lifelong learner-practitioner.

18. The following content elements must be included in the second cycle study programme for the training of medical biologists and medical geneticists, depending on the nature of the study programme:

18.1. the theoretical component of the course in medical genetics, which includes the aetiology, pathogenesis and laboratory diagnosis of genetic diseases, the principles of the structure and functioning of the human genome, variability and its consequences, the principles of inheritance of diseases, the interrelationship between genetic counselling and testing, and the principles of molecular biotechnology and bioinformatics, and the applied and fundamental perspectives thereof;

18.2. the practical component of the course in medical genetics, which includes training in the methods of the profession - modern methods of testing in medical genetics, and the analysis and interpretation of the data obtained from the tests;

18.3. the theoretical component of the medical biology course, which includes the variety and application of basic clinical laboratory methods, human physiological, molecular, biochemical,

immunological, haematological and other parameters in normal state and when dealing with various pathologies, the principles of quality control in laboratory diagnostics, and the principles of disease aetiology and pathogenesis;

18.4. the practical component of the medical biology course, which includes the ability to select, implement and use analytical methods and equipment, to independently interpret the results of tests and to control the appropriateness and cost-effectiveness of the tests prescribed, and to make use of information technologies;

18.5. the development of general competences - the training of a medical professional who is empathetic, collaborative, able to communicate constructively, matter-of-factly and appropriately with doctors and colleagues in a variety of situations, able to analyse and reflect critically on their practical professional activities, and who is a lifelong learner-practitioner.

19. A medical doctor's primary field of professional activities is health care. Those who have obtained the professional qualification of a medical doctor must be able to:

19.1. provide emergency medical assistance;

19.2. competently examine, diagnose and treat illnesses and health conditions listed in the Medical Doctor's Standard, recommend and organise preventive measures, promote the principles of an evidence-based healthy lifestyle, as well as measures for the prevention of diseases and the preservation and promotion of health;

19.3. work ethically and professionally with individual and public health, social care and other professionals, and work as part of a team for the benefit of the patient's health;

19.4. properly manage the records of the medical practice, to ensure data protection, to provide statistical and other information in accordance with the procedures laid down in Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (hereinafter referred to as the "Regulation (EU) 2016/679") and in the Law on Legal Protection of Personal Data and the implementing legislation, and to analyse the results of their work;

19.5. observe the principles of medical ethics, respect the rights of patients and not violate them;

19.6. continuously improve their professional qualifications and social and emotional competences;

19.7. understand the importance of complying with the rules of medical practice licensing and the responsibility for the proper quality of health care services provided;

19.8. perform other duties established by the legislation regulating the activities of a medical doctor.

20. A medical biologist's and medical geneticist's primary field of professional activities is health care institutions. Those who have obtained a Master's degree in Health Sciences must:

20.1. have a good understanding of the aetiology, pathogenesis and laboratory diagnosis of diseases;

20.2. be familiar with and independently apply modern medical genetics, biochemistry, haematology, immunology and other research methods;

20.3. be able to analyse and interpret, critically and coherently evaluate research data in the context of modern knowledge of biomedical sciences, and present and justify scientific conclusions;

20.4. be able to communicate and convey the paradigms of biomedical sciences to specialists and non-specialists. They must also be able to define their scientific and professional interests in the context of developments in the biomedical sciences, and to continuously develop and update their theoretical knowledge and practical skills.

21. Students of medical study programmes are trained to work in health care institutions.

CHAPTER III
GENERAL AND SPECIAL LEARNING OUTCOMES

22. Medical studies must create conditions for the integration of knowledge, skills and values. The student must acquire the general and subject-specific competences required for activities in health care institutions or research and study institutions, educational institutions, other institutions, as well as those necessary to continue their studies in residency and continually improve their knowledge and skills.

23. The following learning outcomes must be achieved upon completion of the study programmes in the field of Medicine and acquisition of the relevant professional qualification:

23.1. the results of integrated studies, upon acquiring Master's degree in health sciences and a professional qualification as a medical doctor:

23.1.1. knowledge and its application. The person:

23.1.1.1. is able to describe and explain the structure, functions and behaviour of the human body in health and disease at the molecular, cellular and behavioural levels, and the interactions between a person's state of health and their physical, psychological and social environment. The person is also able to assess the functional state of the human being and the impairments that develop as a result of disabling diseases, the consequences and complications of injuries, or innate characteristics; they are familiar with the prevention and treatment of impairments in the functional state of the human being, the prevention and treatment of complications, and the principles of physical medicine and/or medical rehabilitation;

23.1.1.2. is able to demonstrate the knowledge and skills necessary for the diagnosis, treatment, long-term care and prevention of mental and somatic diseases and disorders; is able to explain human reproduction;

23.1.1.3. is able to apply ethical and legal principles in the practice of medicine by carrying out diagnostic and clinical work in accordance with national and European Union legislation governing professional practice and the provision of health care services, and the principles of professional ethics;

23.1.2. research skills. The person:

23.1.2.1. is able to apply the principles, methods, knowledge and advances of biomedical sciences and evidence-based medicine to medical practice and biomedical and epidemiological research, and to comply with the rules of good practice;

23.1.2.2. is able to think critically and self-critically, collect information and data from a wide range of evidence-based sources, analyse and systematise it, evaluate critically, interpret clinically, express ideas orally and in writing in a fluent and reasoned manner, communicate professional-scientific information clearly and comprehensibly, draw conclusions and make recommendations, and plan actions on the basis of those conclusions;

23.1.2.3. is able to interpret scientific and professional-practical information in a clinical manner and to draw conclusions and make recommendations;

23.1.2.4. is able to present the results of biomedical research in writing and orally to colleagues and the public;

23.1.3. special abilities. The person:

23.1.3.1. is able to consult patients, identifying and evaluating the patient's medical, physiological, psychological and social needs;

23.1.3.2. is able to recognise, assess and describe the clinical features of diseases and disorders, perform a physical examination and mental health assessment, prescribe targeted tests and clinically interpret the results of medical history, physical examination, instrumental and laboratory tests, perform differential diagnosis, make a clinical diagnosis, draw up a plan for the patient's examination, treatment and follow-up and lifestyle change, and discuss the plan with the patient and the patient's caregivers (guardians) and related professionals;

23.1.3.3. is able to recognise and systematically assess acute health problems and begin to treat them: provide first aid, restore and maintain basic vital functions, and perform the relevant clinical procedures in a safe and effective manner;

23.1.3.4. is able to recognise acute obstetric conditions and provide emergency care in case of acute obstetric conditions;

23.1.3.5. is able to assign treatment: characterise the mechanisms of the effect of medication, assign adequate and proper non-medical, medical and medical rehabilitation treatment, take the clinical situation into account to select appropriate medication and other methods of treatment, and assess their potential benefits and harm;

23.1.3.6. is able to perform procedures: measure blood pressure; bandage, suture wounds; immobilise the spine, pelvis, fractures and different dislocations; assist in operations or procedures under the direction of a specialist physician; administer intravenous infusions; perform peripheral venous puncture and catheterisation; perform subcutaneous and muscular injections; perform oxygen therapy; prepare for and/or transport the patient and monitor their condition; perform transfusion of blood components; perform bladder catheterisation, electrocardiogram, basic respiratory function tests and evaluate their results;

23.1.3.7. is able to assess the psychological and social aspects of a patient's health: recognise and assess the impact and influence of psychological, behavioural and social factors, including addictions (alcohol, tobacco, gambling, etc.) on health, morbidity and the occurrence of disease, and respond appropriately;

23.1.3.8. knows, applies in their personal practice and motivates others to follow the principles of evidence-based healthy lifestyle; is able to understand the problems of health disorders, identify their causes and consequences, and apply their knowledge of the prevention of diseases and disorders, and the possibilities of improving individual and public health;

23.1.4. general social and personal skills. The person:

23.1.4.1. is able to communicate and inform patients and/or their family members or representatives about the results of examinations and their implications, treatment, possible risks, benefits and prevention of treatments empathetically, tolerantly and confidentially, and to observe the principles of morality and ethics, taking into account the individual context and the cultural, social and religious aspects;

23.1.4.2. is able to interact constructively and respectfully with colleagues, other healthcare professionals, academia and the public, to provide clear and understandable professional information and feedback, to foster a positive organisational culture, and to build a sustainable professional community, in accordance with the principles of equality and dignity;

23.1.4.3. is able to organise and plan their professional activities, act independently, communicate and work as part of a team, solve problems, understand, analyse and evaluate their own actions, participate in and evaluate the impact of shared decision-making, and operate and adapt to new situations;

23.1.4.4. is able to act with integrity in their professional activities, to be attentive to time-sensitive issues, to follow the principles of work quality and proper conduct, as well as to think critically and in a self-critical manner, to be creative, to be pro-active, to observe the principles of ethical commitment and transparency, and recognise and respond appropriately to corruption;

17.3.5. is able to take care of their own emotional and physical well-being and health, recognise signs of mental and behavioural difficulties, occupational burnout, violent behaviour, and, if necessary, seek and ask for help;

23.1.4.6. is able to assess the quality of their work and the limits of their competence and, if necessary, seek help and take responsibility for their actions;

23.1.4.7. is able to perceive the diversity and multiculturalism of the environment, work in an international and multicultural environment, understand and take into account the customs and religious beliefs of other nations, and develop general knowledge in a field outside the medical sciences;

23.1.4.8. is able to make proposals for the management of occupational risks and to apply systematic mechanisms for the management of occupational risks in their professional practice;

23.1.4.9. is able to pursue independent learning during further studies and to continuously develop professional qualifications;

23.1.4.10. is able to apply educational skills effectively, to teach and motivate others, and to communicate knowledge to patients, colleagues and the public;

23.1.4.11. is able to communicate professionally in the national language and at least one foreign language to professional audiences;

23.1.4.12. is able to apply information technology effectively in medical practice and ensure the protection of personal data in accordance with Regulation (EU) 2016/679 and its implementing legislation;

23.1.4.13. is able to comply with the provisions of regulatory documents when providing health care services.

23.2. The results of second cycle studies, upon acquiring Master's degree in health sciences and a professional qualification as a medical biologist:

23.2.1. knowledge and its application. The person:

23.2.1.1. is able to demonstrate knowledge of the biomedical sciences (physiology, genetics, biochemistry, cytology, etc.), which enables them to understand the principles of cellular structure, the functioning of organisms, organs and organ systems, the mechanisms and regularities of the regulation of their interrelationships and functions at the molecular level, and is able to use this knowledge to carry out biochemical, immunological, haematological, and cytological laboratory diagnostic tests and apply it to non-standard circumstances;

23.2.1.2. is able to describe laboratory diagnostic test methods, explain the methods used to analyse their results, the indications and principles required for the tests, and the advantages and disadvantages of the tests, and is able to apply this knowledge to the modification of existing or the development of new test methods;

23.2.1.3. is able to describe the impact of pre-laboratory diagnostic testing processes, testing processes and post-testing processes on the quality of laboratory diagnostic tests, and is aware of the principles of environmental factors and pharmaceuticals and their impact on the results of laboratory diagnostic tests;

23.2.1.4. is able to demonstrate knowledge of the principles of diagnostic testing laboratory management and quality assurance;

23.2.1.5. is able to describe the harmful agents and substances that can cause health problems, and explain their principles of action;

23.2.1.6. is able to explain the principles of rational design of workplaces in relation to the specific nature of the work and the competences involved;

23.2.2. research skills. The person:

23.2.2.1. is able to develop, implement, maintain and improve individual and group laboratory diagnostic processes, and apply and improve the quality management system for laboratory diagnostic tests;

23.2.2.2. is able to select, implement and use test methods, laboratory and information tools (instruments), to carry out their verification and to assess their suitability for use;

23.2.2.3. is able to perform and adapt laboratory diagnostic tests in accordance with approved diagnostic procedures, applied and theoretical computational tests in an appropriate and reliable manner, in accordance with the principles of timely organisation of work and the evolving bioethical requirements;

23.2.2.4. is able to apply information technologies and equipment used in biomedicine, and is familiar with their application and use in laboratory diagnostic tests;

23.2.2.5. is able to evaluate and interpret the results of laboratory diagnostic tests, taking into account the specific nature of the field of testing, and perform data analytics on various computing platforms;

23.2.2.6. is able to apply biomedical statistical methods in practice;

23.2.3. special abilities. The person:

23.2.3.1. is able to apply in practice the requirements for the preparation, maintenance and record-keeping of laboratory documentation (project preparation, laboratory logbooks, instrument management, etc.);

23.2.3.2. is able to analyse and apply in practice the requirements related to health insurance, health law, medical ethics and deontology in force in the Republic of Lithuania;

23.2.3.3. is able to organise and carry out internal quality control of laboratory tests, participate in inter-laboratory comparative programmes, evaluate their results, identify non-conformities, and carry out corrective and preventive actions;

23.2.3.4. is able to select test methods and equipment for laboratory diagnostic tests, and perform and set up manual and instrumental laboratory diagnostic tests under non-standard circumstances;

23.2.3.5. is able to evaluate and interpret the results of laboratory diagnostic tests, taking into account the factors influencing the test and the specific nature of the field of testing;

23.2.3.6. is able to advise those involved in biomedical and diagnostic research, and the professionals requesting the tests, in the selection of the most appropriate laboratory tests for the specific case, in order to ensure that the appropriate tests are performed in a timely and high-quality manner, taking into account not only the technical analytical but also the clinical/medical circumstances;

23.2.3.7. is able to analyse the cost-effectiveness of laboratory diagnostic tests and processes;

23.2.3.8. is able to apply the principles and features of the performance, analysis and management of laboratory diagnostic tests and the principles of data processing and programming of test results;

23.2.3.9. is able to use bioinformatics and biostatistical methods to process test results;

23.2.3.10. is able to organise the activities of a diagnostic laboratory tests laboratory/unit in accordance with the requirements of the applicable regulatory acts;

23.2.4. general social and personal skills. The person:

23.2.4.1. is able to communicate and present biomedical science expertise in a professional and comprehensible manner in the context of educational work and non-formal education;

23.2.4.2. is able to work independently and as part of a team to achieve common goals in the performance of tasks, organise interdisciplinary teamwork, generate ideas and integrate knowledge and skills;

23.2.4.3. is able to produce scientific publications and presentations on topics in biomedical science in the field of their specialisation;

23.2.4.4. is able to critically select, analyse and apply information on technological advances in various fields of biomedical science;

23.2.4.5. is able to think abstractly, analyse and summarise scientific information, summarise and present the results of the analysis;

23.2.4.6. is able to respond to changing situations by seeking, analysing and critically evaluating information on laboratory diagnostic testing technologies used for a wide range of diagnostic tests;

23.2.4.7. is able to assess the limits of their knowledge and experience, choose the direction of their personal development and improve their qualifications independently;

23.2.4.8. is able to take independent decisions and moral responsibility for their own actions/performance;

23.3. the results of second cycle studies, upon acquiring Master’s degree in health sciences and a professional qualification as a medical geneticist:

23.3.1. knowledge and its application. The person:

23.3.1.1. is able to demonstrate knowledge of the biomedical sciences (physiology, genetics, biochemistry, cytology, etc.), which enables them to understand the principles of cellular structure, the functioning of organisms, organs and organ systems, the mechanisms and regularities of the regulation of their interrelationships and functions at the molecular level, and is able to use this knowledge to carry out genetic (i.e., cytogenetic, molecular genetic and biochemical genetic) diagnostic tests and apply it to non-standard circumstances;

23.3.1.2. is able to describe genetic laboratory diagnostic test methods, explain the methods used to analyse their results, the indications and principles required for the tests, and the advantages and disadvantages of the tests, and is able to apply this knowledge to the modification of existing or the development of new test methods;

23.3.1.3. is able to describe the impact of pre-genetic laboratory diagnostic tests, testing processes and post-testing processes on the quality of these tests, and is aware of the principles of environmental factors and pharmaceuticals and their impact on the results of laboratory diagnostic tests;

23.3.1.4. is able to demonstrate knowledge of the principles of genetic diagnostic testing laboratory management and quality assurance;

23.3.1.5. is able to explain the principles of rational design of workplaces in relation to the specific nature of the work and the competences involved;

23.3.2. research skills. The person:

23.3.2.1. is able to develop, implement, maintain and improve a range of genetic laboratory diagnostic processes, as well as apply and improve the quality management system for these tests;

23.3.2.2. is able to select, implement and use genetic testing methods, laboratory and information tools (instruments), to carry out their verification and to assess their suitability for use;

23.3.2.3. is able to perform and adapt genetic laboratory diagnostic tests in accordance with approved diagnostic procedures, applied and theoretical computational tests in an appropriate and reliable manner, in accordance with the principles of timely organisation of work and evolving bioethical requirements;

23.3.2.4. is able to apply the information technologies and equipment used in the genetic testing process and in the analysis of the results, and is familiar with and able to use them in the performance of genetic laboratory diagnostic tests;

23.3.2.5. is able to evaluate and interpret the results of genetic laboratory diagnostic tests, taking into account the specific nature of the field of testing, and perform data analytics or computation on various open (modern high-performance) computing platforms as needed;

23.3.2.6. is able to apply biomedical statistical methods in practice;

23.3.3. special abilities. The person:

23.3.3.1. is able to apply in practice the requirements for the preparation, maintenance and record-keeping of laboratory documentation (project preparation, laboratory logbooks, instrument management, etc.);

23.3.3.2. is able to analyse and apply in practice the requirements related to health insurance, health law, medical ethics and deontology in force in the Republic of Lithuania;

23.3.3.3. is able to organise and carry out internal quality control of genetic diagnostic tests, participate in inter-laboratory comparative programmes, evaluate their results, identify non-conformities, and carry out corrective and preventive actions;

23.3.3.4. is able to select test methods and equipment for genetic laboratory diagnostic tests, and perform and set up manual and instrumental laboratory diagnostic tests under non-standard circumstances;

23.3.3.5. is able to evaluate and interpret the results of genetic laboratory diagnostic tests, taking into account the factors influencing the test and the specific nature of the field of testing;

23.3.3.6. is able to advise those involved in genetic testing and the professionals who have commissioned the tests by selecting the most appropriate genetic testing methods for the specific case, ensuring that the tests are carried out at the optimum cost and time, and taking into account not only the technical analytical but also the diagnostic objectives;

23.3.3.7. is able to analyse the cost-effectiveness of genetic laboratory diagnostic tests and processes;

23.3.3.8. is able to use bioinformatics and biostatistical methods to process test results;

23.3.3.9. able to organise the activities of the genetic testing laboratory/unit in accordance with the requirements of the applicable regulatory acts;

23.3.4. general social and personal skills. The person:

23.3.4.1. be able to communicate and present in a professional and comprehensible manner the specific knowledge of genetics and related sciences in the context of educational work and non-formal education;

23.3.4.2. is able to work independently and as part of a team to achieve common goals in the performance of tasks, organise interdisciplinary teamwork, generate ideas and integrate knowledge and skills;

23.3.4.3. is able to produce scientific publications and deliver presentations on topics in human genetics;

23.3.4.4. is able to critically select, analyse and apply information on technological advances in various fields of biomedical science;

23.3.4.5. is able to think abstractly, analyse and summarise scientific information, summarise and present the results of the analysis;

is able to respond to changing situations by seeking, analysing and critically evaluating information on genetic laboratory diagnostic testing technologies used for a wide range of tests;

23.3.4.7. is able to assess the limits of their knowledge and experience, choose the direction of their personal development and improve their qualifications independently;

23.3.4.8. is able to take independent decisions and moral responsibility for their own actions/performance;

CHAPTER IV
TEACHING, LEARNING AND ASSESSMENT

24. Teaching of curriculum for the medical field of study must be based on scientific research results and must reflect the relationship with other fields of study and science. Those studying must be taught not only basic knowledge (fundamentals), but also the latest evidence-based medical knowledge.

25. Studying must help students to recognise their strengths and weaknesses, to identify complex work and social problems, to find the most appropriate solutions to problems~~,~~ to increase their motivation to continuously improve their knowledge, to develop and improve their social, emotional and professional skills, to form a professional identity, and to enable them to acquire both general and subject-specific competences.

26. The methods of teaching and learning must be effective and diverse, and self-study work assignments must be in keeping with the learning outcome of the study programme and motivate students to use their own time and that of their teachers, as well as material resources (libraries, laboratories, equipment, etc.) in a rational manner.

27. Different methods of study are chosen depending on the outcomes to be achieved throughout the course of the subject (module). The study programme may use a variety of traditional and innovative study methods, including using moulages and demonstrations of tissue and organ preparations, simulation/situational learning, virtual learning space, effective distance learning methods, visual and audio aids and telemedicine, viewing of educational images, structuring and analysis of consultation, listening to audio recordings, examination of patients, analysis of clinical and problem cases in the laboratory, operating theatre, intensive care and intensive care units, surgical and therapeutic units, completion of relevant medical documents in inpatient and outpatient practice, project development, reflections, supervisions, etc.

28. Internships in the sixth year of an integrated study programme for the training of medical doctors involves clinical medical practice in accordance with the programme and regulations approved by the higher education institution at clinical practice sites, under the supervision of the internship supervisor and/or coordinator. Clinical practice (internship) combines medical knowledge and skills with clinical experience acquired during the medical study programme in a step-by-step manner; it develops the ability to function in a realistic clinical environment, to understand, analyse, evaluate and learn from one's own experience, to work in a team and to lead it, and to critically evaluate the limits of one's own competences.

29. The study programme must allow for an active student-centred learning process in which, in addition to classroom and practical work, students are given the opportunity to study independently through the assignment of appropriate tasks. Learning methods must be interactive,

with a preference for seminars, work in small groups and individual assignments. The process must include all elements of learning (literature search and analysis, preparation and execution of projects and presentations, communication between students and teachers, practical clinical testing of patients, discussion of the implications of diagnostic tests obtained, etc.).

30. Final research paper and its application in the clinical practice of the relevant study programme is one of the important forms of independent study and clinical reasoning development. In this way, students' critical thinking, analytical, practical and personal, as well as socio-emotional skills must be developed. The forms to be chosen include: literature search and analysis, preparation and execution of projects and presentations, scientific workshops, student research, presentations at scientific conferences, scientific publications.

31. The assessment strategy must be communicated in advance and must be enhancing students' motivation to study and encouraging independent learning. Students must receive timely feedback and assessment must be based on clear criteria and standards formulated in advance, taking into account the conditions and resources available for the work.

32. The assessment system must be focused on and ensure the achievement of the learning outcomes of the study programme and meet the following requirements: clear objectives, methods and criteria for each assessment, clear rules for appeals, complaints and their considerations. Mutual feedback practices between students and their teachers must be encouraged.

33. The following assessment methods may be used in the study programme: assessment of student presentations in seminars and practical training sessions, oral and written tests of knowledge, questionnaires in engaging lectures, laboratory reports, analysis of tests and clinical situations, assessment of the completion of medical records, demonstration of skills (in the laboratory and at the bedside), analysis of the structure of the consultation, continuous assessment of clinical work with patients under the supervision of the teacher, clinical practice records, clinical examinations using real or simulated patients (actors), virtual procedures, etc., objective structured clinical examinations (*OSCEs*) and other advanced assessment methods.

34. The assessment of learning outcomes shall be carried out in accordance with the procedures adopted by the higher education institution, which shall lay down the principles and organisation of the assessment of learning outcomes, the responsibilities of the individuals involved in the assessment of learning outcomes, and their rights and obligations. The procedure for the assessment of study achievements in a subject (module) shall be laid down in its descriptor. At the beginning of the semester, the teacher of the subject (module) shall present to the students the procedure for the assessment of study achievements, outlining the detailed programme of the subject (module), the objectives, the expected study results, the specific structure of the assessment of the study achievements of the subject (module), the criteria, etc.

35. In order to thoroughly test all the knowledge and skills developed, not just one, but several and varied assessment methods must be used to check the level of learning of all students and its correspondence to the intended learning outcomes defined in the study programme or in the individual subject (module).

36. Assessment of the completion of the study programme:

36.1. An integrated study programme intended to train medical doctors shall be completed upon assessment of whether the graduate has acquired sufficient theoretical and clinical knowledge, practical skills and clinical experience, including whether the graduate has completed clinical medical training (internship), successfully defended the final thesis and passed the final examination(s) of the study programme;

36.2. A second-cycle study programme intended to train medical biologists and medical geneticists shall be completed upon assessment of whether the graduate has acquired sufficient theoretical knowledge, practical skills and experience and has successfully defended the final thesis.

Amendments to the paragraph:

No. V-929, 30 August 2024, published in the Register of Legal Acts on 30 August 2024, Identification Code 2024-15220.

37. The Master's thesis must be prepared and defended in accordance with the procedures laid down by the higher education institution. If confidential information is used in the final thesis, the final thesis shall be defended in a closed session.

38. The evaluation committee for the final examination and the Master's thesis defence must be composed of competent specialists in the field of study - researchers, practitioners, and representatives of social partners. At least one member of the final examination board must be from another higher education institution.

39. The clinical placement (internship) of the integrated study programme must culminate in an assessment of the practical knowledge and skills in general medicine, the clinical experience gained and the specific competences achieved. The student must record in the practice diary the skills required for mastering the programme and pass the practical internship examination. The examination must be assessed by a special assessment board composed of competent specialists in the field of study - researchers, practitioners and representatives of social partners.

CHAPTER V
REQUIREMENTS FOR THE IMPLEMENTATION OF STUDY PROGRAMMES

40. The higher education institution organising the study programme must carry out research in the biomedical field.

41. The study programme must be taught by competent and qualified teachers who are interested in scientific innovation and research, are able to apply advanced study methods, are fluent in at least one of the foreign languages used for international cooperation, participate in professional development programmes, are recognised by professional or scientific communities, are familiar with the specifics of the future work of the graduates, and are capable of assisting the students to prepare for their future professional and/or academic activity.

42. The competence and qualifications of teachers shall be evaluated on the basis of their educational, scientific, pedagogical and practical experience, in accordance with the criteria and qualification requirements set by the higher education institutions.

43. At least half of the subjects of an integrated study programme equivalent to the first cycle studies must be taught by researchers who have published scientific articles on behalf of the higher education institution. All subjects should be taught by teachers whose scientific and professional activities are relevant to the subjects they teach.

44. At least 80 per cent of second cycle study subjects and equivalent subjects of integrated university study programme must be taught by researchers who have published scientific articles on behalf of the higher education institution, with the exception of clinical practice (internship). Others may be practitioners who have at least 3 years of professional experience relevant to the applied subjects (modules) taught in the last 7 years. The professional experience referred to in this point is a prerequisite for teachers. At least 20 per cent of second cycle university medical subjects must be taught by professors.

45. The following material base is necessary for the successful running of a medical degree programme:

45.1. a prosectorium complying with the requirements of hygiene and occupational safety (applicable to integrated (Medical) degree programmes).

45.2. anatomy, histology and pathology preparation collections;

45.3. physiology, histology, biochemistry, pathology, microbiology and genetics teaching laboratories which meets hygiene and occupational safety requirements;

45.4. classrooms complying with the requirements of hygiene and occupational safety, equipped with modern information technologies;

45.5. special rooms (with moveable furniture and equipment) suitable for working in groups and developing practical skills (simulation classes) and communication skills;

45.6. virtual simulation platforms for patients, procedures, surgeries and other clinical medical studies (applicable to integrated (Medical) degree programmes);

45.7. a sufficient number of computers with word processing, quantitative and qualitative data processing, and innovative educational programmes;

45.8. libraries/reading rooms with a sufficient amount of scientific literature, textbooks, methodology publications and manuals in Lithuanian and foreign languages necessary to complete the study programme. Libraries must be equipped with computers with online access to international databases, those subscribed to by the institution and/or open access databases;

45.9. a training base which is part of the higher education institution or a health care institution evaluated and selected by the higher education institution to carry out the medical degree, providing diagnostic, inpatient and/or outpatient health care services, which has to ensure the curriculum and structure of the studies, the qualifications of the lecturers, practice coordinators (supervisors), and the technical-material base necessary for the studies.

46. Requirements for internships and clinical practice (internship) executed during the course of studies:

46.1. clinical practice (internship) is an integral and compulsory part of integrated (Medical) studies;

46.2. clinical practice (internship) shall be organised in accordance with the procedures for the organisation of clinical practice (internship) established by the higher education institution;

46.3. clinical practice (internship) may be a separate subject (module) and/or a component of a subject (module);

46.4. the higher education institution shall offer students a list of possible higher education institution placements providing diagnostic, inpatient and/or outpatient healthcare services with which cooperation agreements have been concluded. The student may, in agreement with the higher education institution, find their own placement that meets the requirements of the higher education institution. Upon choosing an institution for practice, a tripartite agreement is concluded between the student, the higher education institution and the healthcare institution.

47. A higher education institution conducting study programmes in the field of Medicine shall ensure the quality of studies, continuously improve study programmes, and take into account the latest developments in medical science, as well as the needs of the labour market and of the students.

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