**SUBJECT (MODULE) DESCRIPTION**

| Subject (Module) title | Code |
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| **Eye diseases** | **AKIU3115** |

| Lecturer (s) | Department (s) |
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| **Coordinating:** Assoc. Prof. Rimvydas Stanislovas Ašoklis, PhD<br><br>**Other:** lecturers at the Clinic of Ear, Nose, Throat and Eye Diseases of the Institute of Clinical Medicine | Vilnius University, Faculty of Medicine, Institute of Clinical Medicine, Ear, Nose, Throat and Eye Diseases Clinic, Santariškių str. 2, Vilnius, Lithuania |

| The Stage of Studies | The level of the Subject (Module) | The Type of the Subject (Module) |
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| Integrated studies (Stage I-II) | - | Compulsory |

| Implementation form | Term of performance | Language(-es) of performance |
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| Lectures and seminars in auditorium and/or remotely. Acquisition of skills through performing ophthalmic examinations and working with visual material.<br>Practical trainings in auditorium, examination rooms, wards and operating rooms of the in-patient department of eye diseases and out-patient clinics. | VI semester | Lithuanian, English |

| Requirements for the students | |
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| **Preconditions:** Students must have taken the following courses: Human Anatomy, Human Histology, Human Biology and Genetics, Human Physiology, General Microbiology and Immunology, Biochemistry, Propaedeutics of Internal Diseases and the Clinical Oncology, Pharmacology, Applied Anatomy, Pathology, Medical Microbiology, Radiology, Anaesthesiology and Reanimatology, general Surgery, Latin language. | **Collateral requirements (if applicable):**<br>None |

| The Scope of the Subject (Module) in Credits | Total Workload of a Student in Hours | Contact Work in Hours | Self-study Hours |
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| 5 credits | 135 | 66 | 69 |

| Purpose of the Subject (Module): competences to be developed during the studies |
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| Purpose: to know the anatomy and physiology of the eye as well as principles of aetiology, pathogenesis, clinical presentation, diagnostics and treatment of ocular diseases. To be aware of first aid in the cases of ocular trauma, eye inflammation, acute angle-closure glaucoma and acute retinal vascular occlusion. After completing the course, students must be able to collect the anamnesis of a patient with ocular disease, draw up the examination and treatment plan, check visual acuity, know the principles of performance and evaluation of refractometry, colour perception tests, binocular vision tests, tonometry and perimetry, have skills how to apply eye drops and ointment, |

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| and perform eyelid eversion. | | |
| **Objectives of the Subject (Module) of the Studies** | **Methods of the Studies** | **Assessment Methods** |
| **General Competences** | | |
| Act with integrity and ethical obligations; be emphatic; develop critical thinking; be creative and initiative in achieving goals; be capable of communicating with others. | Lectures in the auditorium and/or remotely. Practical trainings and seminars in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral interview. |
| Assess the scope of personal competence and, if necessary, ask for assistance; address the problems and take decisions; communicate and work jointly in the team with specialists from other fields and experts in other sciences. | Lectures in the auditorium and/or remotely. Practical trainings and seminars in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral interview. |
| **Subject Competences** | | |
| Know the basics of the clinical and surgical anatomy of the eye globe and its adnexa. Be able to relate anatomic features of the eye with the clinical course of eye diseases. Have knowledge about the physiology, healthy status and main pathologies of central, peripheral, colour and binocular vision. Known the impact of the pathogenesis of eye diseases on changes in eye function. Know basics of the history of ophthalmology. | Lectures in the auditorium and/or remotely. Practical training in the auditorium with analysis of moulage and visual material. Training in the department of eye diseases and examination rooms. Learning the methods of examination under the supervision of a lecturer, performance of central, peripheral, colour and binocular vision tests. | Continuous assessment of practical training in the auditorium and examination rooms. Individual and group oral examination. In the end of the subject, a written exam according to in advance planned and presented procedure. |
| Understand the basics of the optical eye system and physical refraction. Know the physiology of clinical refraction and its types. Know the main methods of refractometry, clinical presentation of refractive errors and principles of their optic correction. Have knowledges about the principles of prescription of glasses and contact lenses. Understand the physiology and disorders of accommodation. Know the basics of the anatomy of the extraocular muscles, be able to diagnose strabismus and know its main types as well as the essentials of treatment. | Practical training in the in-patient department of eye diseases, examination rooms and out-patient clinic or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material, group discussion. Learning examination techniques under the supervision of a lecturer, performing autorefractometry, measuring interpupillary distance. Learning the principles of prescribing glasses and contact lenses. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |
| Have knowledge about the aetiology, pathogenesis, clinical presentation, diagnostics, principles of medical and surgical treatment, complications and prevention of congenital and acquired diseases of eyelids, conjunctiva, orbit and lacrimal system. Know the peculiarities of the above-mentioned diseases in adults and children. Know when to refer a patient with ocular adnexal diseases to an ophthalmologist. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinic and/or remotely. Presentation and discussion of the topics | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a |

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| | prepared by students, analysis of practical and visual material, analysis of case reports, group discussion. Learning examination techniques under the supervision of a lecturer, eyelid eversion, examination of conjunctiva, applying local eye medications (drops and ointment), observation of tear duct irrigation. | predetermined and discussed procedure. |
| Know the aetiology, pathogenesis, clinical presentation, diagnostics, medical and surgical treatment, complications and prevention of congenital and acquired corneal diseases. Know the criteria of corneal donor selection and indications for corneal transplantation. Understand the principles of treatment in case of corneal graft failure. Have knowledge about the systemic conditions that can affect cornea. Know when to refer a patient with corneal diseases to an ophthalmologist. Know the basic principles of refractive surgery. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, in-patients department of eye diseases, examination rooms of corneal diseases and contact lenses, out-patient clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. Discussion of case reports, examination and treatment plan, group discussion. Remote observation of eye surgery in the auditorium using the archived video material. Learning the examination techniques under the supervision of a lecturer, corneal sensitivity testing, corneal fluorescein staining. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |
| Know the aetiology, pathogenesis, clinical presentation, diagnostics, medical and surgical treatment, complications and prevention of congenital and acquired uveal tract diseases. Know systemic conditions that can affect uveal tract. Have knowledge about the epidemiology, clinical presentation and principals of treatment of intraocular tumours in adults and children. Know the significance and indications of the fluorescent angiography for diagnosis and treatment of uveal tract disease. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, the in-patient department of eye diseases, examination rooms, out-patients clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of visual material. Analysis of case reports, evaluation of ophthalmological tests, drawing up of examination and treatment plan. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |

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| Have knowledge about the aetiology, pathogenesis, clinical presentation and diagnostics of congenital and acquired lens diseases. Understand the principles of surgical treatment of lens diseases. Know, the different types of cataract surgery and intraocular lenses, indications for surgery, intraoperative and postoperative complications. Know the principles of preoperative management of the patients undergoing cataract surgery and the basics in post-surgery care. Know aphakia and its treatment. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, the in-patient department of eye diseases, examination rooms, out-patient clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. Remote observation of eye surgery in the auditorium using the archived video material. Analysis of case reports, evaluation of the slit-lamp images of the anterior segment of the eye, discussion of examination and treatment plan. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |
| Know the aetiology, pathogenesis, clinical presentation, diagnostics, medical and surgical treatment, complications and prevention of congenital and acquired retina diseases. Know systemic conditions that can affect retina. Have knowledge about diagnosis and treatment of age related macular degeneration, diabetic retinopathy, hypertensive retinopathy, retinopathy of prematurity, central retinal artery and vain occlusion and retinitis pigmentosa. Know when to refer a patient with retinal diseases to an ophthalmologist. Understand the principals of diagnosis of optic neuropathies, neuritis and papilledema. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, the in-patient department of eye diseases, examination rooms, out-patients clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. Analysis of case reports, discussion of examination and treatment plan, evaluation of ophthalmological tests, group discussion. Remote observation of eye surgery in the auditorium using the archived video material. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |
| Understand the physiology of aqueous humor circulation in eye and the concept of intraocular pressure, hypertension and hypotony. Know the principles and methods of tonometry. Have knowledge about the aetiology, pathogenesis, classification, clinical presentation, diagnostics, medical and surgical treatment, complications and prevention of congenital and acquired glaucoma. Know the clinical presentation, diagnostics, first aid and treatment methods of acute angle-closure glaucoma. Know the principles of long-term care of glaucoma patients. | Lectures in the auditorium and/or remotely, theoretical material is presented. Practical training in the auditorium, the in-patient department of eye diseases, examination rooms, out-patient clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. Analysis of case reports, discussion of examination and treatment plan, discussion of scientific articles. Performance of non-contact tonometry, evaluation of ophthalmoscopic findings of the optic nerve and visual filed. Remote observation of eye surgery in the auditorium using the archived video material. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |

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| Know the aetiology, pathogenesis, classification, clinical presentation, diagnostics, medical and surgical treatment, complications and prevention of ocular traumas (chemical and thermal injuries, closed and open injuries of the eye globe). Know the first aid principles in the cases of ocular trauma and be able to provide first aid thereof. | Practical training in the auditorium, in-patient department of eye diseases, examination rooms, out - patients clinic and/or remotely. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. Analysis of case reports, learning of the first aid of ocular traumas. Remote observation of eye surgery in the auditorium using the archived video material. Group discussion. | Continuous assessment of practical training in the auditorium, in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral examination. In the end of the subject, a written exam according to a predetermined and discussed procedure. |
| Be able to communicate with ophthalmological patients and their relatives, collect anamnesis of the disease, create an examination and treatment plan. Be able to use modern information technologies, properly fill in and store medical records. Learn to keep medical confidentiality. Know how to search for the necessary medical literature, evaluate it critically and apply scientific based evidence in practice. | Practical training in the auditorium and/or remotely. Practical training in the in-patient department of eye diseases, examination rooms and out-patient clinic. analysis of case reports. Group discussion. Presentation and discussion of the topics prepared by students, analysis of practical and visual material. | Continuous assessment of practical training in the auditorium, the in-patient department of eye diseases, examination rooms and out-patient clinics. Individual and group oral interview. |

| **Themes / Topics** | **Contact workload in hours** | | | | | | | **Time and tasks of self-study** | |
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| | Lectures | Consultations | Seminars | Practical training | Laboratory works | Practice | **Total Contact work** | **Self-study** | **Tasks** |
| 1. Introduction into the clinics. Eye anatomy, physiology – central, peripheral, colour, binocular vision, light adaptation, methods of measuring and testing. Clinical refraction and its testing methods. Refraction defects, correction, accommodation and measuring. Presbyopia. | 2 | - | 3 | 3 | - | - | **8** | **8** | Get ready for practical training on eye anatomy and methods for testing vision functions. Students learn testing methods by examining each other, measuring central, peripheral, colour, binocular vision. Studying of schemes, posters and moulages; analysis of the latest literature. Get ready for practical training on the clinical eye refraction and its testing methods. Students learn testing methods by examining each other, and measuring clinical refraction by using skiaskopy and autorefrectometry. Studying of schemes, |

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| | | | | | | | | | posters and moulages. Students learn to measure the interpupillary distance; select and prescribe glasses. |
| 2. Extraocular muscles. Strabismus, testing methods, treatment principles. Lacrimal apparatus, its diseases, examination methods, and the principles of treatment. | - | - | 3 | 3 | - | - | **6** | **7** | Get ready for practical training on eye extraocular muscles, types of strabismus and treatment principles. Preparations for practical training on the anatomy of the lacrimal apparatus, examination methods, and the principles of treatment. Students learn testing methods by examining each other. Tests are made by using four dots test, prisms. Demonstration of lacrimal probing and rinsing of lacrimal ways. Studying of schemes, posters and moulages. |
| 3. Anatomy of eyelids and conjunctiva, examination, diseases and treatment. | 2 | - | 3 | 3 | - | - | **8** | **8** | Get ready for practical training on the anatomy and physiology of eyelids and conjunctiva, diseases, ways of examination and treatment. Students learn testing methods by examining each other. They learn to evert the eyelids, and examine conjunctiva in the direct light. Studying of schemes, posters and moulages. |
| 4. Testing methods for cornea and uveal tract, diseases and the principles of treatment. | 2 | **-** | 3 | 3 | - | - | **8** | **10** | Get ready for practical training on the anatomy and physiology of cornea and uveal tract, and testing methods. Students learn to measure corneal sensitivity, examine the pupillary reaction to the light. Testing of patients and studying the findings. Survey of the eye tissue donor |

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| | | | | | | | | | bank. Students acquire the basics in reading fluorescence angiogrammes. Round table discussion. |
| 5. Lens diseases, testing methods, treatment principles. | 2 | - | 3 | 3 | - | - | **8** | **8** | Get ready for practical training on lens anatomy, diseases and the ways of treatment. Examination of patients and studying of the findings. Biomicroscopy of the anterior segment is made. Cataract removal operation is observed at the eye operation theatre. Watching of the collected video materials on the subject. |
| 6. Glaucoma. Testing methods and treatment principles. | 2 | - | 4 | 3 | - | - | **10** | **10** | Get ready for practical training on eye chamber fluid metabolism and possible disorders. Perform preliminary measurement of the field of vision for each other and for patients with the vision field alterations. Learn to measure eye pressure; study the anamnesis (history) of patients attended at the treatment department of eye diseases. |
| 7. Diseases of retina and optic nerve, examination methods and treatment principles. | 4 | - | 4 | 3 | - | - | **10** | **10** | Get ready for practical training on the anatomy of retina and optic nerve, diseases and examination methods. With the help of direct and indirect ophthalmoscopy students make tests on each other examining the eye fundus; learn to examine the disk of the optic nerve and retina veins; study archival pictures of eye fundus;read their presentations. |
| 8. Eye traumas. Diagnostics and the principles of | 2 | - | 3 | 3 | - | - | **8** | **8** | Get ready for practical |

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| treatment. First aid. | | | | | | | | | training on eye traumas, etiology, principles of providing first aid in the case of burns and perforating eye injuries. Examination of patients with eye traumas and analysis. |
| **In total:** | **16** | | **26** | **24** | | | **66** | **69** | |

| Assessment Strategy | Weight | Reporting | Assessment Criteria |
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| Exam (Test) | 100% | At the end of semester | The test consists of 30 questions valued at a maximum of 1 point each, the maximum score is 30 points (100% of the exam weight). Some of the questions have one correct answer (valued at 1 or 0 points), the other questions have several possible correct answers (valued proportionally according to the number of correctly answered answers).<br>The final assessment looks like this:<br>10 (ten points): excellent knowledge. Assessment level 28.5-30 points.<br>9 (nine points): very good knowledge. Evaluation level 25.5-28.5 points.<br>8 (eight points): good knowledge. Assessment level 22.5-25.5 points.<br>7 (seven points): average knowledge. Evaluation level 19.5-22.5 points.<br>6 (six points): satisfactory knowledge. Assessment level 16.5-19.5 points.<br>5 (five points): minimum satisfactory knowledge. Assessment level 13.5-16.5 points.<br>4 and below: Unsatisfactory knowledge. Evaluation level < 13.5 points. |

| Author | Year of Publication | Title | No of the Periodical or Volume of the Publication | Publisher or Web link |
|---|---|---|---|---|
| **Obligatory literature** | | | | |
| John F. Salmon | 2019 | Kanski's Clinical Ophthalmology. A Systematic Approach. | | Elsevier |
| R. Žemaitienė, D. Žaliūnienė, I.Janulevičienė ir kt. | 2021 | Oftalmologijos pagrindai | | LSMU Akademinė leidyba |
| **Additional literature** | | | | |
| American Academy of Ophthalmology | 2019-2020 | American Academy of Ophthalmology. Basic and Clinical Science Course (BCSC). | (Section 1-13) | Elsevier |