

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Subject (module) title/ code	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Cathedral /Clinic	Faculty of Medicine Institute of Biomedical Sciences Clinic of Ear, Nose, Throat and Eye Diseases			
Subject (module) description (ECTS credits, hours)	Clinical Ophthalmology 10 credits (270 hours)			
Subject (module) studies design	Lectures	Seminars	Consultations	Self-study hours
ECTS credits	-	-	2	8
Assessment strategy (10 points system)	Written exam: 3 themes are reviewed, doctoral student has to present theoretical knowledge, explain their practical application, introduce the theme actualities).			
PURPOSE OF THE COURSE UNIT				
<p>To provide theoretical and practical knowledge about the anatomical and functional features of the eye, the development of the eye, the principles of diagnosis and treatment of eye diseases, the prevention of low vision and blindness. To acquaint with methods and guidelines for diagnosis, monitoring and treatment of eye diseases based on clinical trials. Promote research-based, patient-centered clinical thinking and decision-making in ophthalmological practice.</p>				
THE MAIN TOPICS OF COURSE UNIT				
<p><u>Structure, physiology and development of the eyeball and ocular adnexa.</u> Ocular metabolism. Tear secretion, its disorders. Corneal metabolism. Physiology and aqueous humor composition and circulation. Age-related biochemical changes of the vitreous and lens. Examination and disorders of central and peripheral vision. Sense of color and light: hypotheses of color sense, investigation methods and disorders. Binocular vision, its development and the necessary conditions, methods of determination.</p> <p>Peculiarities of ocular optical system. Forms of clinical refraction, anisometropia, aniseiconia. Refraction test methods. Prevention and correction of ametropias. Optical correction with spectacles and contact lenses. Accommodation, its disorders. Amblyopia, its diagnosis and treatment. Concomitant squint, its forms, clinic, differential diagnosis, treatment. Paralytic squint, clinic, differential diagnosis, treatment. Squint correction surgery, its complications.</p> <p><u>Diseases of the eyelids, conjunctiva and lacrimal system.</u> Inflammatory diseases of the eyelids, diagnosis and treatment. Eyelid tumors. Examination and surgical treatment of pathological eyelid position. Blepharospasm, its treatment. Congenital anomalies of the eyelids. Tear system diseases, diagnostics, causes, treatment. Dry eye syndrome. Conjunctival inflammatory diseases: etiology, classification, diagnostics and treatment. Conjunctival degeneration, benign and malignant tumors.</p> <p><u>Orbital diseases, causes, treatment.</u> Exophthalmos. Graves' (endocrine) ophthalmopathy. Diagnosis and treatment of orbital inflammation. Orbital vascular diseases. Orbital tumors.</p> <p><u>Corneal and scleral diseases.</u> Causes of corneal inflammatory diseases (infectious, immune) diagnostics, treatment. Contact lenses, their features, indications,</p>				

counter-indications. Diseases caused by contact lenses. Corneal tumors. Corneal topographic examination: pachymetry, ultrasound, staining methods. Congenital diseases of the cornea, degenerations, dystrophies, their treatment. Therapeutic and refractive corneal surgery. Inflammatory, immune and degenerative diseases of the sclera, their clinic, diagnostics and treatment.

Diseases of the lens. Congenital anomalies of the lens. Cataract: classification, diagnosis. Surgery of cataract: techniques, complications, postoperative care of patients. Secondary cataract, its treatment methods. Lens subluxation and its surgical treatment. Intraocular artificial lenses, their types. Methods for calculation of intraocular lenses.

Glaucoma. The classification and epidemiology. Physiology of intraocular pressure, measurement methods and their features. Primary open-angle and closed-angle glaucoma: differences, clinic, diagnostics, treatment. Acute angle closure glaucoma, clinic, treatment. Secondary glaucoma, their causes. Early diagnosis of glaucoma and its progression. Guidelines for the treatment of glaucoma: medications, laser and surgical treatment. Treatment's complications. Peculiarities of congenital and juvenile glaucoma. Normal-tension glaucoma.

The diseases of the uvea. Inflammation (infectious or immune) of the iris and/or ciliary body: laboratory diagnostics, differential diagnostics, clinic, treatment. Inflammatory diseases of the choroid, their causes, clinic, treatment. *Rubeosis iridis*, its etiology, pathogenesis, complications, treatment. Tumors of the uvea: diagnosis, treatment methods. Congenital pathology, diagnosis, treatment of the iris. Choroidal, ciliary body and iris melanoma: diagnostics and treatment.

Diseases of the retina and optic nerve. Retinal tears: clinic, diagnostics, treatment. Retinal detachment types, treatment. Diabetic retinopathy: classification, diagnostic and treatment. Differential diagnosis and treatment of acute retinal central artery and venous occlusion. Macular degenerations: diagnosis and treatment. Cystoid macular edema: causes and treatment. Diagnosis and treatment of central serous chorioretinopathy. Congenital macular dystrophies. Pathological vitreous opacifications. Vitreous hemorrhage, clinic, treatment tactics.

Neuroophthalmology. Paresis of extraocular muscles. Normal and pathological pupilar reaction to light. Argyll-Robertson pupil. Marcus-Gunn pupil. Clinic and diagnostics of the visual tract impairment. Nystagmus: forms, diagnostics, treatment, prognosis. Optic nerve examination methods. Congenital optic disc pathology. Pseudopapilledema: causes, diagnostics. Papilledema: etiology, pathogenesis. Optic neuritis: etiology, diagnostics, clinic and treatment. Features of retrobulbar neuritis. Anterior ischemic optic neuropathy: causes, clinic, treatment. Optic disc pit: diagnostics, treatment. Tumors of the optic nerve, their treatment.

Ocular and adnexal trauma. International Classification of Eye Trauma. Blunt eye injuries, their consequences, treatment. Open eyeball injuries, their diagnostics, clinic, peculiarities of treatment. Intraocular foreign bodies, their diagnostics, peculiarities of treatment. Sympathetic ophthalmia. Chemical and thermal burns of the eyeball, their treatment. Physical eyeball damage - pathology caused by ultraviolet rays and ionizing radiation.

Ophthalmic pharmacology. Medications groups, their use, side effects, contraindications.

RECOMMENDED LITERATURE SOURCES

1. Basic and clinical science course 2021-2022. American Academy of Ophthalmology; 2021.
2. Yanoff M., Duker J. Ophthalmology, 5th edition. Elsevier. 2018.

3. Tasman et al. Duane's ophthalmology and DVD-ROM. Lippincott Williams and Wilkins; 2013.
4. Salmon J. Kanski I. Clinical ophthalmology, 10th edition. Elsevier; 2021.
5. Knepper P.A., Sampers JR. Glaucoma Research and Clinical Advances: 2020 to 2022. Kugler Publications; 2021.
6. Terminology and Guidelines for Glaucoma (5th edition). Publicomm; 2020.
7. Jašinskas V, Blužienė A. Akių ligų vadovas. A.S. Narbuto leidykla; 2005.
8. Mannis, Holland. Cornea 2-Volume set, 5th edition. Elsevier; 2021
9. Freund K.B., Sarraf B., Mieler V.F., Yannuzzi L. The Retina Atlas. Elsevier; 2016.
10. Jackson T.L. Moorfields Manual of Ophthalmology, 3rd edition. JP Medical Ltd; 2019.

CONSULTING LECTURERS

1. Coordinating lecturer: Rimvydas Stanislovas Ašoklis (Assoc. Prof. Dr.).
2. Andrius Cimbaldas (Assoc. Prof. Dr.).
3. Saulius Galgauskas (Assoc. Prof. Dr.).

APPROVED BY:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė