

Документ подписан простой электронной подписью
Информация о владельце:
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Должность: Ректор
Дата подписания: 28.05.2026 12:33:11
Уникальный программный идентификатор:
ca953a0120d891083f939673078ef1a989dad18a

Federal State Autonomous Educational Institution of Higher Education "Patrice Lumumba Peoples' Friendship University of Russia"

Medical Institute
(name of the main educational division (ОУП) developer of the ОП ВО)

WORK PROGRAM OF THE DISCIPLINE

OPHTHALMOLOGY
(name of the discipline/module)

Recommended by the MCCH for the field of study/specialty:

31.05.03 DENTISTRY
(code and name of the field of study/specialty)

The development of the discipline is carried out within the framework of the implementation of the main professional educational program of higher education (ОП ВО):

DENTISTRY
(name (profile/specialization) ОП ВО)

1. COURSE GOAL(s)

The discipline “Ophthalmology” is included in the specialty program “Dentistry” in the direction of 31.05.03 “Dentistry” and is studied in the 7th semester of the 4th course. The discipline is implemented by the Department of Eye Diseases. The discipline consists of 8 sections and 32 topics and is aimed at studying the basic patterns of development and functioning of the organ of vision, the causes, course, clinical picture, diagnosis, treatment and prevention of the most common eye diseases and damage to the organ of vision, as well as the ability to apply the acquired knowledge in solving professional problems. tasks.

The goal of the course "Ophthalmology" is to form of scientific knowledge in the field of ophthalmology and the ability on their basis to identify deviations in the state of the organ of vision in people of different ages, to carry out prevention and provide first aid to patients, taking into account further training and professional activities.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering of discipline «Ophthalmology» is aimed at the development of the following competences::

Table 2.1. List of competences that students acquire through the course study

Competence code	Competence descriptor	Competence formation indicators (within this course)
GPC-5	Capable of conducting an examination of a patient for the purpose of establishing a diagnosis when solving professional tasks	GPC-5.6 Refers the patient for consultation to specialist doctors if there are medical indications in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on issues of providing dental care, taking into account standards; ОПК-5.8 Conducts differential diagnostics with other diseases/conditions, including emergencies;
GPC-9	Capable of evaluating morphofunctional, physiological states and pathological processes in the human body to solve professional tasks. Capable of conducting a patient examination to establish a diagnosis	GPC-9.3 Determines morphofunctional, physiological states and pathological processes of the human body;

Competence code	Competence descriptor	Competence formation indicators (within this course)
PC-1	Capable of conducting a patient examination to establish a diagnosis	PC-1.2 Obtains information from patients (their relatives/legal representatives), conducts patient surveys regarding general health status, identification of concomitant diseases to establish a preliminary diagnosis;
PC-6	Capable of analyzing and publicly presenting medical information based on evidence-based medicine, participating in scientific research, and implementing new methods and techniques aimed at public health protection	PC-6.1 Conducts a search for medical information based on evidence-based medicine, interpreting data from scientific publications and/or prepares a presentation for the public presentation of medical information, results of scientific research;

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
GPC-5	Capable of conducting an examination of a patient for the purpose of establishing a diagnosis when solving professional tasks	Prosthetics (simple prosthetics); Cariology and diseases of hard dental tissues; Local anesthesia and anesthesiology in dentistry; General surgery; Propaedeutics of dental diseases; Prosthetics for complete absence of teeth; Surgical diseases; Oral surgery; Internal diseases;	Assistant dentist (orthopedist); Gnathology and functional diagnostics of the temporomandibular joint; Dermatovenerology; Pediatric dentistry; Pediatric maxillofacial surgery; Diseases of the head and neck; Medical genetics in dentistry; Orthodontics and pediatric

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
		Endodontics; Pathological anatomy; Pathological anatomy of the head and neck;	prosthodontics; Dental prosthodontics (complex prosthodontics); Maxillofacial and gnathic surgery; Maxillofacial prosthodontics; Gerontostomatology and diseases of the oral mucosa; Neurology; Periodontology; Psychiatry and narcology; Implantology and reconstructive oral surgery; Pediatrics;
GPC-9	Capable of evaluating morphofunctional, physiological states and pathological processes in the human body to solve professional tasks	Histology, embryology, cytology - Histology of the oral cavity; Local anesthesia and anesthesiology in dentistry; Microbiology, virology - Microbiology of the oral cavity; Normal physiology, physiology of the maxillofacial region; Oral surgery; Biological chemistry - Biochemistry of the oral cavity; Pathophysiology - Pathophysiology of the head and neck;	Pediatric dentistry; Diseases of the head and neck; Implantology and reconstructive oral surgery; Orthodontics and pediatric prosthodontics; Maxillofacial and gnathic surgery; Forensic medicine; Medical rehabilitation; Dental prosthodontics (complex prosthodontics); Telemedicine;
PC-1	Capable of conducting an examination of a patient for the purpose of establishing a diagnosis	Assistant dentist (hygienist); Prosthodontics (simple prosthodontics); Immunology, clinical immunology; Cariology and diseases of hard dental tissues; Local anesthesia and anesthesiology in dentistry; Propaedeutics of dental diseases; Prosthodontics for complete absence	Assistant dentist (general practice), including scientific research work; Gnathology and functional diagnostics of the temporomandibular joint; Pediatric dentistry; Pediatric maxillofacial surgery; Diseases of the head and neck; Implantology and reconstructive oral

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
		of teeth; Oral surgery; Fundamentals of military training. Life safety; Endodontics; Three-dimensional radiological diagnostic methods in dentistry**; Three-dimensional computer modeling of teeth**; Chemistry of biogenic elements**; Dental modeling of teeth**; Pathophysiology - Pathophysiology of the head and neck; Pathological anatomy - Pathological anatomy of the head and neck; Radiation diagnostics;	surgery; Medical genetics in dentistry; Orthodontics and pediatric prosthetics; Dental prosthetics (complex prosthetics); Maxillofacial and gnathic surgery; Maxillofacial prosthetics; Gerontostomatology and diseases of the oral mucosa; Periodontology; Modern endodontics**; Aesthetic tooth restoration**; Medical rehabilitation; Cone-beam computed tomography in diagnostics, planning, and evaluation of dental solution effectiveness; Oncostomatology and radiation therapy;
PC-6	Capable of analyzing and publicly presenting medical information based on evidence-based medicine, participating in scientific research, and implementing new methods and techniques aimed at public health protection	Prosthetics (simple prosthetics); Immunology, clinical immunology; Prosthetics for complete absence of teeth; Pharmacology;	Assistant dentist (general practice), including scientific research work; Gnathology and functional diagnostics of the temporomandibular joint; Pediatric maxillofacial surgery; Medical genetics in dentistry; Dental prosthetics (complex prosthetics); Maxillofacial prosthetics; Clinical research; Evidence-based medicine; Clinical dentistry;

* - to be filled out in accordance with the competency matrix and SUP EP VO

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course «Ophthalmology» is 2 credits (72 academic hours)

Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)*

Type of academic activities	Total academic hours	Semesters/training modules	
		7	
Contact academic hours (total)	51	51	
Including:			
Lectures (LC)	-	-	
Lab work (LW)	51	51	
Seminars (workshops/tutorials) (S)	-	-	
<i>Self-studies</i>	18	18	
<i>Evaluation and assessment (exam/passing/failing grade)</i>	3	3	
Total course workload	academic hours	72	72
	credits	2	2

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Section 1 1.1 Anatomy of the organ of vision. Methods of research.	Three sections of the visual analyzer. Anatomy of the orbit. Peripheral (receptor) section. Represented by the receptor apparatus of the eye — the retina (сетчатая оболочка). In it are located photoreceptors — rods and cones, which perceive light rays. Rods — receptors for the perception of light in conditions of low illumination (achromatic vision). Cones — receptors for the perception of light in conditions of bright illumination (chromatic vision). Conductive section. Includes the optic nerve, which transmits nerve impulses from the retina to the subcortical and stem structures of the CNS. The optic nerve contains sensory fibers. After exiting the orbit, it enters the cranial cavity through the optic canal, where a partial crossover of fibers (chiasm) occurs. Further, the nerve paths continue into the optic tracts, which end in the lateral geniculate bodies — primary visual centers. Central (cortical) section. Located in the occipital lobe of the cortex of the large hemispheres of the brain. Here occurs the highest analysis and synthesis of visual signals, the formation of a visual image.	LW
1.2 Protective apparatus of the eye. Conjunctiva.	Accessory apparatus of the eye. The accessory apparatus of the eye is a complex of auxiliary structures that ensure protection, moistening, and maintenance of the functions of the eye. To it belong the eyelids, conjunctiva, lacrimal apparatus, and some other elements. Eyelids — skin folds that protect the eye from mechanical damage and bright light. Thanks to blinking movements, they ensure uniform distribution of lacrimal fluid over the surface of the eye, protecting the cornea from drying out. In the eyelids, one distinguishes the outer and inner surfaces, edges, cartilages, the muscle lifting the upper eyelid, lateral and medial commissures, eyelashes, lacrimal papillae with lacrimal points, the conjunctiva with its upper and lower vaults.	LW
	Conjunctiva.	LW

	A thin mucous membrane that covers the inner surface of the eyelids and the front part of the sclera. It serves as a barrier against infections and maintains the moistening of the eye. With the palpebral fissure closed, the conjunctiva forms a closed cavity — the conjunctival sac.	
1.3 Tear-producing and tear-draining apparatus of the eye.	Lacrimal apparatus. Consists of tear-producing and tear-draining structures. The tear-producing apparatus includes the lacrimal gland and a series of small accessory lacrimal glands located in the upper and lower vaults of the conjunctiva (Krause glands). The lacrimal gland produces a tear that moistens the corneal and connective membranes of the eye. The tear-draining paths start with the excretory ducts of the lacrimal gland and the glands of the conjunctiva. Lacrimal fluid washes the anterior surface of the eyeball, then along the lacrimal river, located along the inner edge of the eyelids, flows into the lacrimal lake. From the lacrimal lake, the tear enters the lacrimal points, which are located on the lacrimal papillae in the inner parts of the rib edge of both eyelids. From the lacrimal points, the tear enters the lacrimal tubules, then into the lacrimal sac and into the lacrimal-nasal canal, which opens into the lower nasal passage.	LW
1.4 Shells of the eyeball. Intraocular contents.	Outer (fibrous) shell. Composition: Cornea — transparent front part, which is the first lens on the path of light rays. It performs mechanical protection of the eye and transmits light rays. Sclera — opaque back part, forming the framework of the eyeball. It ensures protection, maintains the shape of the eye and its tone. It is formed of dense fibrous connective tissue with bundles of collagen fibers. Functions: protection, maintenance of eye shape, attachment of extraocular muscles, participation in maintaining ophthalmotonus.	LW
	Middle (vascular) shell. Composition: Iris — front pigmented part containing the pigments melanin and lipofuscin, which determine eye color. In the center of the iris is the pupil — an opening regulating the amount of light entering the eye. Ciliary (ресничное) body — front thickened part of the vascular shell. Participates in accommodation (change of lens curvature), produces the aqueous humor of the eye chambers, participates in thermoregulation. Proper vascular shell (choroid) — posterior section of the vascular tract. Ensures nutrition of the outer layers of the retina, regulates metabolism, participates in eye thermoregulation. Consists of several layers: suprachoroidal, vascular, choriocapillary, and basal (Bruch's membrane). Functions: trophic (nutrition of eye tissues), regulation of metabolism, participation in thermoregulation, control of the flow of solar radiation entering inside the eye.	LW
	Inner (retinal) shell (сетчатка). Structure: consists of several layers of nerve cells, vessels, and other elements. Includes photoreceptors (rods and cones), bipolar and ganglion cells, and pigment epithelium.	LW
1.5 Examination of the eye and its appendages under lateral illumination and in transmitted light. Fundamentals of ophthalmoscopy.	Examination of the eye. A method that allows for the detection of subtle changes in the sclera, cornea, anterior chamber, iris, and pupil. Conducted in a darkened room.	LW
1.6 Central and peripheral vision. Change of visual fields.	Central and peripheral vision. Two key components of visual function that ensure different aspects of perception of the surrounding world.	LW
1.7 Color perception. Disorders of color perception.	Color perception. Color perception is the ability of a person to distinguish colors and shades, which is ensured by the work of photoreceptors (cones) in the retina of the eye.	LW

	Disorders of color perception can be congenital or acquired, and their diagnosis is important for identifying pathologies and professional selection.	
Section 2 Visual acuity. Refraction. Accommodation.	2.1 Optical device of the organ of vision. The optical system of the eye is a complex biological system that works according to the laws of physical optics. Its main task is to refract and precisely focus light rays to form a clear image on the retina.	LW
	2.2 Visual acuity. Visual acuity is the ability of the eye to separately perceive two points located from each other at a minimum conventional distance. It depends on the anatomical and physiological features of the eye, as well as on the processes of visual information processing in the brain.	LW
	2.3 Physical and clinical refraction. Physical refraction is the refractive power of the optical system of the eye, which includes the cornea, lens, aqueous humor, and vitreous body.	LW
	2.4 Accommodation and convergence. Accommodation is the ability of the eye to focus on objects located at different distances. Convergence is the bringing together of the visual axes of both eyes to the center when looking at a closely located object. More simply, it is the ability to "squint the eyes" to see something nearby clearly.	LW
	2.5 Anomalies of refraction. Correction. Anomalies of refraction are violations of the proportionality of the optical system of the eye, in which the focus of the image is located not on the retina, but in front of it or behind it, which leads to blurred vision. The main types of refraction anomalies include myopia (nearsightedness) and hypermetropia (farsightedness).	LW
	2.6 Astigmatism, its types, principles of correction. Astigmatism is a disorder of refraction (refraction of light) in which light rays do not converge at a single point on the retina, which leads to a blurred or distorted image. This happens due to the irregular shape of the cornea or lens.	LW
	2.7 Presbyopia, principles of correction. Presbyopia (age-related farsightedness) is an age-related decrease in the accommodative ability of the eye, which leads to a deterioration of vision at a close distance. Correction is carried out using optical methods, surgical interventions, or their combinations.	LW
Section 3 Binocular vision. Strabismus.	3.1 Binocular vision. Violation of binocular vision. Binocular vision is the ability of a person to see the surrounding world simultaneously with two eyes, combining two slightly different images into a single three-dimensional perception of space (stereoscopic effect). It allows for accurate estimation of the distance to objects, depth, shape, size, and location of items in space.	LW
	3.2 Strabismus, types. Causes. Types of treatment of strabismus. Strabismus (strabismus, heterotropia) — is an ophthalmological disease in which one eye deviates from the joint point of fixation. Normally, both eyes are located symmetrically, ensuring correct binocular vision. In strabismus, the coordinated work of the eyes is disrupted; they cannot fixate on the object of vision.	LW
Section 4 Inflammatory diseases of the anterior segment of the eye (conjunctivitis, keratitis, scleritis).	4.1 Acute infectious conjunctivitis. Classification. Treatment. Chronic conjunctivitis. Classification. Treatment. Allergic conjunctivitis. Classification. Treatment. Infectious conjunctivitis — is a group of inflammatory diseases of the mucous membrane of the eye (conjunctiva) caused by various pathogens. Their classification is based on the type of pathogen and the clinical picture.	LW
	4.2 General symptomatology of diseases of the cornea. Exogenous keratitis. Endogenous keratitis. Etiology, clinical picture, treatment. Corneal ulcer. Etiology, clinical picture, treatment. Outcomes of keratitis. Types of treatment of keratitis and their consequences. Keratitis — is an inflammatory disease of the cornea of the eye, which can lead to its clouding, decrease in visual acuity, and other complications. Corneal ulcer — is a destructive process in the corneal shell of the eye with the formation of a crater-	LW

	like ulcerative defect. This is a serious disease that can lead to vision loss, therefore it requires timely diagnosis and treatment by an ophthalmologist.	
	4.3 Scleritis. Clinical picture, treatment. Scleritis — is an inflammatory disease of the sclera (the outer dense collagenous shell of the eye), which may be associated with systemic autoimmune diseases, infections, or other reasons. The disease is often accompanied by pain, redness of the eyes, and can threaten vision.	LW
Section 5 Diseases of the vascular shell.	5.1 Iritis. Iridocyclitis. Clinical picture, diagnosis, treatment. Iritis — is inflammation of the iris of the eye. Iridocyclitis (anterior uveitis) — inflammation of the anterior section of the vascular shell of the eye, including the iris and the ciliary (цилиарное) body. Due to a common system of blood supply and innervation, inflammation can spread from one part to another.	LW
	5.2 Chorioretinitis. Clinical picture, diagnosis, treatment. Chorioretinitis — is an inflammatory disease in which the choroid (the posterior part of the vascular shell of the eye) and the retina are affected. It can be acute or chronic, have different localization and morphological changes.	LW
Section 6 Cataract. Glaucoma.	6.1 Definition of glaucoma. Normal and increased IOP. Etiology, pathogenesis and classification of glaucoma. Acute attack of glaucoma. Features of the clinical picture. Treatment. Methods of treatment of glaucoma. Glaucoma — a group of chronic eye diseases in which there is a periodic or constant increase in intraocular pressure (IOP), which leads to damage to the optic nerve, atrophy with excavation (widening of the nerve exit site), and characteristic changes in the visual field. This can lead to loss of vision, and in severe cases — to blindness.	LW
	6.2 Definition of cataract. Classification of cataracts. Connection of cataracts with general diseases. Modern principles of cataract treatment. Cataract — is an eye disease in which a partial or complete clouding of the lens occurs, leading to a deterioration of vision. Normally, the lens is transparent and performs the function of a lens, focusing light on the retina.	LW
Section 7 Diseases of the retina and the optic nerve.	7.1 Retinitis. Changes of the retina in general diseases. Clinical picture. Treatment. Degenerative changes of the retina. Clinical picture. Treatment. Retinitis — is an inflammation of the retina of the eye, which can lead to irreversible vision loss.	LW
	7.2 Inflammatory and non-inflammatory diseases of the optic nerve. Features of the clinical picture. Treatment. Optic nerve neuritis — inflammation of nerve fibers, which can be caused by infections, autoimmune diseases, demyelination, toxins, injuries, and other factors.	LW
Section 8 Traumas. Eye diseases in countries with a hot climate.	8.1 Causes and classification of eye traumas. Injuries of the eyelids. Blunt trauma of the eyeball. Trauma of the orbit. Diagnosis. Treatment. Eye burns. Classification. Methods of treatment. Eye traumas — are a violation of the integrity or functional state of its tissues under the influence of external factors. They can affect not only the eyeball, but also the accessory apparatus — eyelids, lacrimal organs, orbit.	LW
	8.2 Organization of eye care to the population. Disability by vision. One of the priority medical-social problems at the current stage is the problem of disability and rehabilitation of patients and disabled persons due to eye diseases. The relevance of this problem is conditioned by the significant prevalence of eye diseases, a high level of disability of persons of working age, and a decrease in the quality of life [46]. Currently, the number of blind people in the world increases by one adult every five seconds and by one child every minute. In total, about 50 million people are blind and another 150 million people become disabled due to various diseases and consequences of injuries to the organ of vision. With the aim of preventing morbidity and disability due to eye diseases since 1999, the WHO program "Vision 2020. Elimination of Avoidable Blindness: a global initiative of the WHO" has been implemented. The goal of the specified program is the reduction of blindness and low vision by 24 million people by the year 2020.	LW

	<p>8.3 Etiology of trachoma, stages of the disease. Complications and consequences of trachoma. Differential diagnosis. Prevention and treatment of trachoma. Trachoma — chronic infectious eye disease caused by the bacterium <i>Chlamydia trachomatis</i>. It is the main infectious cause of blindness in the world. The disease is predominantly widespread in countries with tropical and subtropical climates, especially in poor rural areas with poor sanitary conditions.</p>	LW
	<p>8.4 Features of eye pathology in countries with a tropical climate. Classification of eye diseases in tropical countries. Ophthalmohelminthiases (main types). Ophthalmohelminthiases — are parasitic lesions of the eyes caused by helminths. They can affect both humans and animals (for example, fish).</p>	LW
	<p>8.5 Ophthalmomyiases. Treatment, prevention. Ophthalmomyiasis — a parasitic disease caused by the introduction of fly larvae (for example, botflies) into the tissues of the eyeball or its appendages. It can lead to severe complications, including loss of vision.</p>	LW
	<p>8.6 Change of eyes in general diseases. Treatment. Eye changes are often a consequence of general (systemic) diseases of the body. This may be related to a violation of blood supply, metabolic processes, inflammatory or autoimmune reactions. Treatment of such conditions is usually directed at the primary disease and may also include symptomatic and local therapy of ocular manifestations.</p>	LW
	<p>8.7 Lesion of the organ of vision in avitaminoses. Lesion of the organ of vision by animal and plant poisons. Lesion of the organ of vision in avitaminoses is associated with a deficiency of specific vitamins that play a key role in maintaining eye health. A particularly significant role in the pathology of the organ of vision is played by hypovitaminoses of vitamins A, B1, B2, PP, C, K, D, E, and B12.</p>	LW

* - to be filled in only for **full**-time training: *LC* - lectures; *LW* - lab work; *S* - seminars.

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS.

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
Lab-work	Audience for conducting laboratory works, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and equipment.	Computer/laptop with installed software. Multimedia projector with screen, demonstration tables, models, broadcast system from the ophthalmological operating room "Live Surgery." Software: 1. Microsoft Office; 2. Multimedia manual (Atlas of Ophthalmology); 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive DVD-ROMS. Duration approx 35 hrs. State Budgetary Healthcare Institution City Clinical Hospital named after V.M. Buyanova of the Moscow Healthcare Department, Laboratory, Audience 716.

Seminar	Audience for conducting classes of the seminar type, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means of multimedia presentations.	- computer/laptop with installed software. Multimedia projector with screen, demonstration tables, models. Software: 1. Microsoft Office; 2. Multimedia manual (Atlas of Ophthalmology); 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive DVD-ROMS. Duration approx 35 hrs. (VideoLIX). 4. Interactive television panel SDIO-IV86ACN-0001 with the Live Surgery system. Audience 7.
Seminar	Audience for conducting classes of the seminar type, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means of multimedia presentations.	Ophthalmological diagnostic equipment: Golovin-Sivtsev tables, phoropter, electronic sign projector, slit lamp, direct/indirect ophthalmoscopes, skiascopic rulers, perimeter, Maklakov tonometer, pneumotonometer, A-B scan, fundus camera, retinotomograph, sets of microsurgical instruments. Software: Digital fundus camera Aurora. 1. Microsoft Office; 2. Multimedia manual (Atlas of Ophthalmology); 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive DVD-ROMS. Duration approx 35 hrs. (VideoLIX). JSC "International Airport Vnukovo," Audience 6.
Self-studies	Audience for independent work of students (can be used for conducting seminar classes and consultations), equipped with a set of specialized furniture and computers with access to the ЭИОС.	- computer/laptop with installed software. Multimedia projector with screen, demonstration tables, models. Software: 1. Microsoft Office; 2. Multimedia manual (Atlas of Ophthalmology); 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive DVD-ROMS. Duration approx 35 hrs. (Video LIX). Ophthalmological Center of RUDN, Audience 408.

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. **Ophthalmology: national guide** / ed. S.E. Avetisov, E.A. Egorov, L.K. Moshetova, V.V. Neroev, Kh.P. Takhchidi. - 2nd ed., revised and expanded; Electronic text data. - Moscow: GEOTAR-Media, 2022. - 904 p.
2. **Egorov E. A. Ophthalmology. textbook** [Electronic resource]. - M.: GEOTAR-Media, 2023. 312 p. ISBN 978-5-9704-7114-2.

Additional literature:

1. **Dutton J.J. Atlas of clinical anatomy of the orbit** / J.J. Dutton; trans. from English ed. S.N. Sakhnov, V.V. Myasnikova. - M.: Practical Medicine, 2021. - 296 p.

2. **Inflammatory and infectious eye diseases** / ed. Hyun Gon Yu; trans. from English ed. I. A. Loskutov. — Moscow: GEOTAR-Media, 2021. - 128 p.
 3. **Erichev V.P. Basic methods of glaucoma diagnostics** / V.P. Erichev, A.A. Antonov, A.A. Vitkov. - M.: April, 2021. - 337 p.
 4. **Diseases of the macular area guide** / ed. Ivana K. Kim; trans. from English ed. I.A. Loskutov. - Moscow: GEOTAR-Media, 2022. - 144 p.
 5. **Conjunctivitis** / I.A. Loskutov, E.N. Khomyakova. - Moscow: GEOTAR-Media, 2022. - 152 p.
 6. **Red eye syndrome (clinic, diagnostics, treatment):** study guide for use in educational institutions implementing basic professional educational programs of higher education at the residency level in the specialty "Ophthalmology"; comp. V.V. Egorov, G.P. Smolyakova, O.V. Kolenko, L.P. Danilova. - Khabarovsk: Publishing center IPKSZ, 2021. - 416 p.
 7. **Ophthalmology. Pharmacotherapy without errors:** a guide for doctors / ed. Yu. S. Astakhov, V. P. Nikolaenko. - Moscow: E-noto, 2021. - 800 p.
 8. **Practical guide to emergency ophthalmology:** algorithms for an approach to providing emergency care in ophthalmology / ed. E.-L. Shirodkar, G.S. Williams; translation from English edited by I.A. Loskutov. – M.: GEOTAR-Media, 2022. - 304 p.
 9. **Ophthalmologist's handbook** / Kh.P. Takhchidi, N.A. Gavrilova, N.S. Gadzhieva, et al. – M.: GEOTAR-Media, 2021. - 224 p.
- Resources of the information and telecommunications network "Internet":**
- Electronic Library System of RUDN – ЭБС РУДН <http://lib.rudn.ru/MegaPro/Web>
 - ЭБС "University Library Online" <http://www.biblioclub.ru>
 - ЭБС Yurait <http://www.biblio-online.ru>
 - ЭБС "Student Consultant" www.studentlibrary.ru
 - ЭБС "Troitsky Bridge"
- 2. Databases and search engines:**
- Electronic fund of legal and regulatory-technical documentation <http://docs.cntd.ru/>
 - Yandex search engine <https://www.yandex.ru/>
 - Google search engine <https://www.google.ru/>
 - SCOPUS abstract database <http://www.elsevierscience.ru/products/scopus/>
- Educational-methodological materials for independent work of students during the mastering of the discipline/module* 1. Course of lectures on the discipline "Ophthalmology".** * — all educational methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in **TUIS**

DEVELOPERS:

**Head of Ophthalmology
department, PhD, professor**

position, department

signature

M.A. Frolov

name and surname

**Assistant professor of
Ophthalmology department, PhD**

position, department

signature

A.M. Frolov

name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

**Head of Ophthalmology
department, PhD, professor**

position, department

signature

M.A. Frolov

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HEAD OF HIGHER EDUCATION PROGRAMME:

Deputy MI director

position, department

signature

S.N. Razumova

name and surname