Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Institution of Higher Education
“National Research Nuclear University “MEPhI”

INSTITUTE OF ENGINEERING PHYSICS FOR BIOMEDICINE

APPROVED НТС ИФИБ

Protocol No. 3.1

dated 30.08.2024

ACADEMIC COURSE OUTLINE

ОФТАЛЬМОЛОГИЯ / OPHTHALMOLOGY

Educational program track (speciality) [1] 31.05.01 General Medicine

Semester	**Labour input, credits**	**Total course academic, hours**	**Lectures, hrs.**	**Practical sessions, hrs.**	**Laboratory sessions, hrs.**	**In the form of practical studies, hrs.**	**Independent studies, hrs.**	**Independent studies monitoring, hrs.**	**Course progress, Exam/Pass-fail exam/Term**
12	3	108	16	40	0		52	0	PFE
Total	3	108	16	40	0	40	52	0	

ABSTRACT

During the course of mastering the discipline, students acquire the knowledge necessary to identify eye pathology, correctly assess its severity, the skills to provide first aid and ensure the necessary measures to organize prevention and treatment and ensure the necessary measures for organizing the prevention, treatment and rehabilitation of patients with various diseases and injuries of the visual organ.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The purpose of studying the discipline:

developing competencies in the diagnosis, treatment and prevention of common eye diseases.

Objectives of studying the discipline

- formation of a system of knowledge about the etiology, epidemiology, pathogenesis, clinical manifestations of eye diseases, methods of diagnosis, treatment and prevention of the most common eye diseases;
- to form a readiness to identify the main pathological conditions, symptoms and syndromes, nosological forms of diseases and injuries of the eye, to formulate a preliminary diagnosis;
- to develop skills in drawing up a plan for examination and treatment of patients with eye diseases, interpreting the results of additional studies in accordance with clinical recommendations in order to establish a diagnosis;
- developing skills and abilities to provide medical care in the event of emergency conditions in ophthalmology, determining indications for hospitalization of patients with eye pathology;
- to develop skills in choosing rational medicinal, non-medicinal and other types of treatment for eye diseases, taking into account the severity of the disease and in accordance with clinical recommendations; ability to assess the effectiveness and safety of prescribed treatment;
- to develop skills in carrying out preventive measures aimed at preventing the development of diseases and injuries of the urinary system, complications, relapses;
- development of communication skills with patients, taking into account ethics and deontology, skills of interaction with colleagues;
- develop clinical thinking, the ability to work with scientific literature and apply regulatory documents in the field of ophthalmology in professional activities, and the ability to maintain medical records.

2. PLACE OF THE ACADEMIC COURSE IN THE MAIN HIGHER EDUCATION CURRICULUM

To successfully master this discipline, you need knowledge, skills and abilities developed in the study of such disciplines as: Medical microbiology and virology, Immunology, Pathological anatomy, Pathophysiology, Pharmacology, General surgery, Surgical diseases faculty and hospital course, etc.

The knowledge, skills and abilities acquired as a result of studying the discipline are necessary to solve the problems of professional activities in the diagnosis, treatment and prevention of diseases.

3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

Competency code and title	Code and title of competency-based rubrics
ОПК-4 [1] – Capable of using medical devices stipulated by the medical care procedures, as well as conducting patient examination for diagnosis establishment.	З-ОПК-4 [1] – Know: - modern diagnostic instrumental examination methods for patients, including functional, radiological, ultrasound, radionuclide diagnostics, and endoscopy; - diagnostic capabilities of instrumental examination methods; - medical devices stipulated by the procedure for providing medical care to the adult population in the "Therapy" specialty, and the equipment standard for a therapeutic room; - main medical devices stipulated by the procedures for providing medical care to the adult population in major surgical specialties, obstetrics, and gynecology; - indications for referring patients for instrumental examinations and functional diagnostics; - techniques for physical examination of patients using medical devices stipulated by procedures and considering medical care standards У-ОПК-4 [1] – Be able to: - use medical devices stipulated by the medical care procedure; - determine the required volume and content of instrumental and functional diagnostics to establish a diagnosis; - interpret results of the most common functional and instrumental diagnostic methods В-ОПК-4 [1] – Possess skills in: - using basic medical devices (stethoscope, blood pressure monitor, sphygmomanometer, pulse oximeter, height-weight scale, measuring tape, neurological hammer, scalpel, forceps, and other devices); - operating electrocardiographs and devices for measuring external respiratory function; - interpreting results of the most common functional and instrumental diagnostic methods
ОПК-6 [1] – Capable of organizing general nursing, providing primary medical care, ensuring the organization of work and making professional decisions in emergencies at the pre-hospital stage, in emergency situations, epidemics and in areas of mass destruction	З-ОПК-6 [1] – Know: - a set of measures for general nursing with diseases of various organs and systems; Signs of clinical and biological death; - indications for patient hospitalization for the most common diseases with typical progression. У-ОПК-6 [1] – Be able to: - organize care for patient when providing medical care in an outpatient setting; - determine the need for patient hospitalization; - ensure the organization of work in emergency situations, epidemics, and in mass casualty zones. В-ОПК-6 [1] – Possess skills in: - general care of a patient (general nursing); - providing first aid; - making medical decisions in emergencies at the prehospital stage, including in emergency situations, epidemics, and in mass casualty zones.
ОПК-7 [1] – Capable of prescribing treatment and monitoring its effectiveness and safety.	З-ОПК-7 [1] – Know: - pharmacological groups of medicinal drugs and their intended purposes; - mechanisms of action of pharmacological and non-pharmacological treatments, indications and contraindications for their use, side effects, and complications caused by their application; - methods for monitoring the effectiveness and safety of various treatment approaches. У-ОПК-7 [1] – Be able to: - make rational choices for pharmacological and non-pharmacological treatments based on clinical guidelines and in accordance with medical care

	standards; - develop a treatment plan for a disease or condition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - prescribe medications, medical devices, and therapeutic nutrition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - justify prescribed pharmacological and non-pharmacological treatments; - evaluate the effectiveness and safety of medications, medical devices, therapeutic nutrition, and other treatment methods. В-ОПК-7 [1] – Possess skills in: - administering medications through various routes of administration; - developing treatment plans for diseases or conditions considering diagnosis, age, disease course characteristics, and comorbidities; - assessing the effectiveness and safety of prescribed treatments.

Professional competencies in compliance with the goals and professional knowledge areas:

Professional activity goal	**Professional activity knowledge area**	**Professional competency code and title; Based on the professional standard, experience analysis**	**Code and title of competency-based rubrics**
medical			
Diagnostics of diseases and pathological conditions of the patients.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.2 [1] - Capable of conducting patient examinations to establish a diagnosis *The base:* Professional standard: 02.009	З-ПК-3.2[1] - Know: - clinical diagnosis establishment algorithm; - patient history-taking and physical examination methodology; - laboratory and instrumental research methods for health assessment to establish a diagnosis; - semiotics of diseases of different organs and systems; - structure, principles of the current International Statistical Classification of Diseases and Related Health Problems (hereinafter - ICD).; У-ПК-3.2[1] - Be able to: - conduct patient history-taking and physical examination; - interpret history, physical examination data, laboratory and instrumental results to recognize a

			condition or establish the presence/absence of a disease, establish a diagnosis; - distinguish and recognize in each specific case tissue damage, the reaction to it, and the form of adaptability; - develop a patient examination plan, justify the necessity and scope of laboratory and instrumental examination; - identify main pathological conditions, symptoms and syndromes, nosological forms in the patient according to the current ICD.; В-ПК-3.2[1] - Possess skills in: - patient history-taking and physical examination; Formulating a preliminary diagnosis; - developing a patient examination plan; Interpreting laboratory and instrumental results; - establishing a diagnosis considering the current ICD
Providing primary medical care in outpatient settings and day hospital settings.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	ПК-3.3 [1] - Able to provide primary medical care in an outpatient setting *The base:* Professional standard: 02.009	З-ПК-3.3[1] - Know: - general issues of organizing medical care for the population and organizing medical care for the adult population in outpatient settings, including at home; - features of medical care using telemedicine technologies; - Clinical picture, differential diagnosis, features of the course of the disease, complications and outcomes of internal diseases; - diagnostic criteria for the most common diseases of internal organs and systems; - indications for referring patients for

			specialist consultations according to clinical guidelines and considering relevant medical care standards; - indications for referring patients for specialized medical care in inpatient settings and day hospitals according to clinical guidelines and considering relevant medical care standards; - features of managing and treating elderly patients in outpatient settings. ; У-ПК-3.3[1] - Be able to: - perform differential diagnosis of internal diseases; - monitor the course of physiological pregnancy; - justify the need for referring patients to specialist consultations; - recognize the main and concomitant diseases; - assess disease or condition severity - the degree of organ and/or system damage or functional impairment due to the disease/condition or its complications; - determine management, examination and treatment tactics for patients with specific diseases (nosological units) depending on disease severity and condition, according to clinical guidelines and considering relevant medical care standards.; В-ПК-3.3[1] - Possess skills in: - conducting differential diagnosis with other diseases/conditions, including emergencies; - interpreting data obtained from patient consultations with specialists; - prescribing additional tests to clarify the diagnosis; -

			formulating a clinical diagnosis; - prescribing treatment according to clinical guidelines and considering relevant medical care standards.

4. PEDAGOGIC POTENTIAL OF THE COURSE

Pedagogic tracks/objectives	**Pedagogic goals (code)**
Professional education	Establishing conditions for: formation of responsibility for professional choice, professional development and professional decisions (B18)
Professional education	Establishing conditions for: formation of motivation to improve the quality of medical care to the population and the desire to follow the rules and norms of interaction between the doctor, colleagues and the patient, contributing to the creation of the most favorable environment for the patient's recovery (B34)

5. ACADEMIC COURSE STRUCTURE AND CONTENT

Academic course sections, their scope, terms of study and assessment:

No.	**Academic course section name**	**Weeks**	**Lectures/ Practical (seminars)/ Laboratory sessions, hrs.**	**Compulsory current assessment (form*, week)**	**Maximum grade per section****	**Section assessment (form*, week)**	**Competency-based rubrics**
	12 Semester						
1	The First Section	1-7	6/16/0	T-8 (25)	25	T-8	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
2	The Second Section	8-15	10/24/0	T-15 (25)	25	T-15	З-ОПК-4, У-ОПК-4,

							В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3
	Totals for 12 Semester		16/40/0		50		
	Assessment events for 12 Semester				50	PFE	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3

* – abbreviated name of assessment

** – 100 maximum points per semester including a pass/fail exam and (or) an exam

Abbreviated current assessment forms and section assessment

Abbreviation	Full name
T	Testing
PFE	Pass/fail examination

SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	12 Semester	16	40	0
1-7	**The First Section**	6	16	0
1 - 4	**Anatomy and physiology of the visual analyzer**	All		
	Methods for studying the organ of vision and its appendages.	4	10	0
	Physical and clinical refraction. Accommodation. Presbyopia.	Online		
	Astigmatism. Assignment of points.	0	0	0
5 - 7	**External eye diseases**	All		
	pathology of the eyelids, lacrimal organs and conjunctiva.	2	6	0

	Pathology of the cornea. Pathology of the vascular tract.	Online		
		0	0	0
8-15	**The Second Section**	10	24	0
8 - 12	**Lens pathology** Glaucoma. Exchange of intraocular fluid Classification, clinical picture and diagnosis of primary glaucoma. Acute attack of glaucoma. Conservative and surgical treatment. Secondary glaucoma. Cataract. Etiology, pathogenesis, classification, clinical manifestations. Criteria for diagnosis. Principles of surgical treatment.	All		
		6	12	0
		Online		
		0	0	0
13 - 15	**Trauma to the organ of vision and adnexa of the eye** Binocular vision. Strabismus. Damage to the eye and its appendages. Traumatic iridocyclitis and sympathetic inflammation. Changes in the eyes due to general pathology. Diseases of the retina and optic nerve. Eye tumors.	All		
		4	12	0
		Online		
		0	0	0

Abbreviated names of online options:

Abbreviation	**Full name**
EC	E-course
FtM	Full-text material
FtL	Full-text lectures
VM	Video materials
AM	Audio materials
Prs	Presentations
T	Tests
ERM	E-reference materials
IS	Interactive site

PRACTICAL SESSIONS TOPICS

Weeks	**Topics / Content**
	12 Semester
1	**Development, normal anatomy, physiology and histology of the organ of vision** Phylo- and ontogenesis of the organ of vision. Stages of development of the visual analyzer. The structure of the eyeball and adnexa. Visual sensory system. Blood supply and innervation of the organ of vision.
2	**Visual functions and methods for their study.** Functions of the organ of vision and their study: visometry, perimetry, study of color perception, light perception, binocular vision. Clinical methods for studying the organ of vision. External (general) examination, external examination of the eye and its adnexa. Examination of the eye in lateral focal illumination. Biomicroscopy, gonioscopy, ophthalmoscopy, study of intraocular pressure, study of corneal sensitivity, ultrasound, morphometric imaging, electrophysiological methods for studying the organ of vision.
3	**Refraction and accommodation. Physical refraction, clinical refraction, accommodation, mechanism of accommodation.** Accommodation disorders: habitual excessive tension of accommodation, spasm of accommodation, paralysis of accommodation. Types of clinical refraction (emmetropia, hypermetropia, myopia). Types of ametropia: myopia, hypermetropia, astigmatism. Refractogenesis, age-related

	dynamics of static refraction. Clinical indicators of the activity of ocular accommodation and clinical forms of its violation. Methods for eliminating visual defects and treating ametropia. Methods for correcting refractive errors: glasses, contact lenses, surgery.
4	**Diseases of the auxiliary organs of the eye. Inflammatory, dystrophic diseases of the eyelids, lacrimal organs, conjunctiva** Diseases of the auxiliary organs of the eye. Inflammatory, dystrophic diseases of the eyelids, lacrimal organs, conjunctiva Clinic, principles of diagnosis, treatment and patient management tactics
5	**Corneal diseases** Diseases of the cornea: inflammatory (keratitis), dystrophies. Etiology, pathogenesis, clinical features, diagnosis, differential diagnosis, treatment principles, outcomes. Congenital changes in the shape and size of the cornea: megalocornea, microcornea, keratoconus, keratoglobus. Tactics, principles of treatment
6 - 7	**Diseases of the choroid** Diseases of the choroid: infectious or toxic-allergic diseases, degenerative processes, as well as congenital anomalies. Clinical symptoms of uveitis, differential diagnosis, diagnosis, emergency care, principles of treatment, possible outcomes. Uveopathies (dystrophic diseases of the vascular tract). Fuchs syndrome. Essential progressive mesodermal dystrophy of the iris. Glaucomocyclic crisis. Etiology, clinical picture, complications.
8	**Lens diseases** Acquired cataracts - age-related and acquired (with local and general diseases, traumatic cataracts). Clinic, diagnosis, treatment.
9	**Glaucoma. Ophthalmotonus. Drainage system of the eye. Hydrodynamics and hydrostatics.** Glaucoma. Etiopathogenesis, classification, clinical picture of primary glaucoma, secondary, congenital glaucoma. The optic nerve is normal and with glaucoma, changes in visual functions with glaucoma. Ocular hypertension: pseudohypertension, symptomatic and essential hypertension. Early diagnosis of glaucoma. Clinical examination of patients with glaucoma. Treatment of glaucoma: conservative, surgical, laser. Hypotony of the eye. Etiology. Clinic. Complications: subatrophy of the eyeball
10	**Acute attack of glaucoma. Conservative and surgical treatment. Secondary glaucoma. Treatment** Acute attack of glaucoma. Conservative and surgical treatment. Secondary glaucoma. Treatment
11	**Concomitant strabismus** Pathology of the oculomotor system: incorrect position of the eyes (strabismus), limitation of movements (paralytic strabismus), lack of movement of the eyeball (ophthalmoplegia), disturbances of convergence and divergence, nystagmus. Amblyopia: classification, types of amblyopia. Treatment of concomitant, paralytic strabismus
12	**Damage to the organ of vision** Injuries to the organ of vision. Prevalence of eye injuries. Types of eye damage in people of different ages. Penetrating and non-penetrating wounds of the eyeball. Contusions of the organ of vision. Contusions of the eyeball. Orbital damage. Injuries of the eye appendages: damage to the eyelids, lacrimal ducts. Burns of the organ of vision. Features of the clinic of chemical burns, thermal burns (under the influence of high temperature, steam, ionizing radiation). Characteristics of other damage to the organ of vision (frostbite, damage from electric current, toxic substances, from the use of nuclear weapons). Medical examination after organ damage
13	**Diseases of the retina and vitreous body**

	Diseases of the retina and vitreous body Inflammatory retinal lesions: metastatic retinitis, central serous chorioretinitis, angiitis, Ilse periphlebitis. Etiopathogenesis, features of the course, diagnosis, principles of treatment. Vascular diseases of the retina. Retinal vascular obstruction: spasm, embolism of the central retinal artery, thrombosis of the central retinal vein. Subjective signs, objective clinical picture, diagnosis, emergency care, treatment principles, prognosis. Retinal angiomatoses. Hereditary and acquired retinal dystrophies, features of clinical manifestations. Retinal detachment. Diagnosis of retinal detachment, differential diagnosis, prognosis, principles of conservative and surgical treatment. Pathology of the vitreous body: Hemophthalmos. Destruction of the vitreous body. Endophthalmitis. Etiopathogenesis, clinical picture, diagnosis, treatment principles
14	**Optic nerve diseases** Inflammatory diseases of the optic nerve. Intrabulbar neuritis (papillitis), retrobulbar neuritis. Toxic lesions of the optic nerve. Methyl alcohol, alcohol and tobacco intoxication, damage to the optic nerve due to poisoning with mercury, lead, arsenic. Acute and chronic ischemic neuropathies. Anterior, posterior ischemic neuropathy. Congestive optic disc. Optic nerve atrophy. Acquired and congenital optic atrophy
15	**Ophthalmo-oncology** Epidemiology of oncological diseases of the organ of vision. Classification of tumors of the organ of vision by localization and course. Etiopathogenesis, clinical picture, histological structure, features of growth and course of neoplasms of the organ of vision. Tumors of the skin of the eyelids, conjunctiva and cornea, choroid, retina, orbit. Retinoblastoma. Modern diagnostic methods, principles of treatment: radiation, surgery, combined, complex. Possible complications and outcomes of neoplasms of the eyeball and its adnexal apparatus.

6. EDUCATIONAL TECHNOLOGIES

In the process of teaching the discipline, methods based on modern achievements of science and information technology in education are used. They are aimed at improving the quality of specialist training by developing students' creative abilities and independence.

For this purpose, both traditional teaching methods (lectures, clinical practical exercises) and interactive forms of conducting seminars and clinical discussions are used:

- training forms of practical training (clinical situational task, case, role-playing game in the form of clinical analysis or patient supervision);
- interactive clinical analysis with patient demonstration;
- involvement of students in scientific preclinical and clinical research, preparation of presentation materials, reports, essays or abstracts.

7. ASSESSMENT TOOLKIT

The assessment toolkit ensures verification of the intended learning outcomes achievement (competency-based rubrics) using current, midterm and interim assessment of the course.

The link between developed competencies and their assessment is presented in the following table:

Competency	**Achievement rubrics**	**Assessment activity (Syl 1)**
ОПК-4	З-ОПК-4	РГЕ, Т-8, Т-15, Т-8, Т-15

	У-ОПК-4	PFE, T-8, T-15, T-8, T-15
	В-ОПК-4	PFE, T-8, T-15, T-8, T-15
ОПК-6	З-ОПК-6	PFE, T-8, T-15, T-8, T-15
	У-ОПК-6	PFE, T-8, T-15, T-8, T-15
	В-ОПК-6	PFE, T-8, T-15, T-8, T-15
ОПК-7	З-ОПК-7	PFE, T-8, T-15, T-8, T-15
	У-ОПК-7	PFE, T-8, T-15, T-8, T-15
	В-ОПК-7	PFE, T-8, T-15, T-8, T-15
ПК-3.2	З-ПК-3.2	PFE, T-8, T-15, T-8, T-15
	У-ПК-3.2	PFE, T-8, T-15, T-8, T-15
	В-ПК-3.2	PFE, T-8, T-15, T-8, T-15
ПК-3.3	З-ПК-3.3	PFE, T-8, T-15, T-8, T-15
	У-ПК-3.3	PFE, T-8, T-15, T-8, T-15
	В-ПК-3.3	PFE, T-8, T-15, T-8, T-15

Educational achievement rubrics scales

The scale of each assessment activity varies from 0 to the maximum established point, inclusive. The final assessment of the course is performed on a 100-point scale and represents the sum of the points earned by the student in the section assessments, framework of current and interim assessment.

Sections and interim assessments are considered passed when the student achieves a minimum score equal to 60% of the maximum. The final grade is assigned only upon passing all sections and the interim assessment.

The final grade is assigned in accordance with the following scale:

<table>
<tr><th>Total score</th><th>Rating on a 4-point scale</th><th>Pass/fail examination</th><th>ECTS assessment</th></tr>
<tr><td>90-100</td><td>5 – «excellent»</td><td rowspan="7">«pass»</td><td>A</td></tr>
<tr><td>85-89</td><td rowspan="3">4 – «good»</td><td>B</td></tr>
<tr><td>75-84</td><td>C</td></tr>
<tr><td>70-74</td><td rowspan="2">D</td></tr>
<tr><td>65-69</td><td rowspan="2">3 – «satisfactory»</td></tr>
<tr><td>60-64</td><td>E</td></tr>
<tr><td>below 60</td><td>2 – «fail»</td><td>«fail»</td><td>F</td></tr>
</table>

An “excellent” grade indicates a deep and solid mastery of the program material by a student who presents their answers consistently, clearly, and logically, is able to closely link theory with practice, and uses materials from monographic literature in their answers.

A “good” grade corresponds to a student’s solid knowledge of the material, who presents their answers competently and to the point, without any significant inaccuracies.

A “satisfactory” grade corresponds to the basic level of mastery of the material by the student, in which the main material has been mastered, but its details have not been assimilated, the answers contain inaccuracies, insufficiently correct wording and logical inconsistencies.

A grade “pass” corresponds to at least a basic level of mastery of the program material, in which the student possesses the necessary knowledge, skills, and abilities, and is able to apply theoretical principles to solve typical practical problems.

A grade “fail” is given to a student who lacks a significant understanding of the curriculum material, makes significant errors in their answers, or fails all required assignments. These students are generally unable to continue their studies without additional classes.

8. ACADEMIC COURSE EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT

CORE READING:

1. ЭИ О-91 Офтальмология : учебник, , Москва: ГЭОТАР-Медиа, 2023

FURTHER READING:

1. ЭИ М73 Minimally Invasive Ophthalmic Surgery : , , Berlin, Heidelberg: Springer Berlin Heidelberg, 2010

2. ЭИ Л 24 Гериатрическая офтальмология : , Лаптева Е.С., Арьев А.Л. , Москва: ГЭОТАР-Медиа, 2022

3. ЭИ К49 Клинические нормы. Офтальмология : справочник, Гаврилова Н.А. [и др.], Москва: ГЭОТАР-Медиа, 2020

SOFTWARE:

No special softwares is required

LMS AND ONLINE RESOURCES

1. Общество офтальмологов России. Информационные ресурсы (https://oor.ru/education/info-resources#!/tab/439965782-3)

https://online.mephi.ru/

http://library.mephi.ru/

9. LOGISTICAL SUPPORT

1. Персональный компьютер: Процессор CPU Intel Core i7-8700 (3.2GHz/12MB/6 cores) Материнская плата Gig (Клиническая база)

2. Мышь, клавиатура (Клиническая база)

3. Проектор SMART P109 (Клиническая база)

4. Монитор (Клиническая база)

5. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)

6. Анализатор поля зрения ПЕРИСКАН (64-301)

7. Аппарат Ротта (64-301)

8. Офтальмоскоп прямой медицинский BETA 200S LED с рукояткой перезаряжаемой BETA 4NT (64-301)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Before you start studying the topic, you need to familiarize yourself with the main questions of the practical lesson plan and the list of recommended literature.

When preparing for a practical lesson, you must first of all refer to the lecture notes, sections of textbooks and teaching aids in order to get a general idea of the place and significance of the topic in the course being studied. Then work with additional literature, make notes on recommended sources.

In the process of studying the recommended material, it is necessary to understand the structure of the topic being studied, highlight the main provisions, follow their logic and thereby understand the essence of the problem being studied.

It is necessary to keep records of the material being studied in the form of notes, which, along with visual memory, also includes motor memory and allows you to accumulate an individual fund of auxiliary materials for quickly repeating what you read, to mobilize accumulated knowledge.

Clinical practical training

The most important stage of the practical lesson is the independent work of students to master practical skills: in simulated conditions, at the patient's bedside, in the functional diagnostics room, etc.

Depending on the specific topic of the lesson, the student independently (or under the supervision of a teacher) questions the patient, conducts a clinical examination, and is present during instrumental diagnostics and studies the results of additional studies, summarizes the data, presents them in the form of fragments of a medical history and reports the results to the teacher. Achievements are assessed individually for each student, the degree of development of practical skills and their theoretical foundations.

Clinical reviews of thematic patients are carried out for the entire group or through the participation of students in clinical reviews and periodic scientific and practical conferences in medical organizations where practical training takes place. During debriefings, the teacher evaluates each student's active participation and ability to think clinically.

Solving situational tasks proposed by the teacher that develop clinical thinking and force the student to use the knowledge acquired in various subjects of the specialty.

Active and interactive forms of conducting classes are widely used in the educational process (work in small groups, activation of creative activity, use of computer training programs, conference classes).

The teacher supervises the independent work of students, the preparation of abstracts, research work, working with the patient together with the teacher, interpreting data from additional research methods, and filling out medical documentation.

Basic forms of recording: plan (simple and detailed), extracts, abstracts. In the preparation process, it is important to compare sources, think through the material being studied and build an algorithm of actions, and carefully consider your oral presentation.

Recommendations for preparing for the test.

Test work – 10 -15 – 20 - 25 points. Each question is worth 1 (2) points.

TOPICS: indicated in each specific section

Answer requirement: a clear, detailed answer (2 points/task) or choosing the correct answer to a test task (1 point/task).

Recommendations for preparing for the test/exam

Response requirements and assessment criteria:

An “excellent” grade of 45–50 points on a test/exam is given with: a correct, complete and logically structured answer; ability to operate with special terms; the ability to illustrate theoretical concepts with practical material

A “good” score of 35–44 points on the exam is given with: a correct, complete and logically constructed answer with minor errors or inaccuracies; ability to operate with special terms, but incomplete conclusions or generalizations are made.

A “satisfactory” grade of 30–34 points on the exam is given with: a schematic incomplete answer; inability to operate with special terms or ignorance of them; with one major mistake;

A grade of “unsatisfactory” < 30 points in the exam is given when: answering all questions on the ticket with gross errors; inability to operate with special terminology; inability to give examples of the practical use of scientific knowledge.

Admission to the examination in the discipline is carried out with a score of more than 30.

During the semester, a student can score from 30 to 50 points.

The minimum score for an answer in the exam is 30, the maximum is 50.

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

During practical classes, students’ assimilation of lecture-based educational material is monitored, patients are supervised, and practical skills are monitored.

To demonstrate and train practical skills, visual aids, surgical instruments, simulators, device simulators, or demonstrations of ophthalmic manipulations in real conditions are used. To assess the ability for clinical thinking, students are offered to solve situational problems, clinical stories, test tasks, analysis of clinical patients, visits to medical conferences, councils, and scientific symposiums.

The most important stage of the practical lesson is the independent work of students to master practical skills: in simulated conditions, at the patient’s bedside, in the functional diagnostics room, etc.

Depending on the specific topic of the lesson, the student independently (or under the supervision of a teacher) questions the patient, conducts a clinical examination, is present during instrumental diagnostics and studies the results of additional studies, summarizes the data,

presents the medical history in fragments and reports the results to the teacher. Achievements are assessed individually for each student, the degree of development of practical skills and their theoretical foundations.

Clinical reviews of thematic patients are carried out for the entire group or through the participation of students in clinical reviews and periodic scientific and practical conferences in medical

organizations where practical training takes place. During debriefings, the teacher evaluates each student's active participation and ability to think clinically.

Solving situational problems proposed by the teacher that develop clinical thinking and force the student to use the knowledge acquired in various subjects of the specialty.

Active and interactive forms of conducting classes are widely used in the educational process (work in small groups, activation of creative activity, use of computer training programs, conference classes).

The teacher supervises students' independent work, preparation of abstracts, research work, work with the patient together with the teacher, interpretation of data from additional research methods, and filling out medical documentation.

Working with educational literature is considered as a type of educational work and is carried out within the hours allocated for its study. Each student is provided with access to the electronic library funds of the institute and department.

Teaching students helps develop their communication skills with patients, taking into account ethics and deontology.

Independent work contributes to the development of skills in working with patients, working with literature, analytical thinking, skills in filling out documentation, accuracy, and discipline.

The initial level of students' knowledge is determined by testing, the current control of mastering the subject is determined by oral questioning during classes, during clinical discussions, when solving typical situational problems and answering test tasks.

At the end of studying an academic discipline, intermediate and final knowledge control is carried out using test control, testing practical skills and solving situational problems.

Gradation and criteria for test papers, long-answer tests, homework and final test:

1) - Test work is assessed according to the scheme 1 point – 1 correct answer. The student did not start work – (-1) point

2) - Tests with a detailed answer are assessed according to the following scheme: complete answer - 2 points, incomplete answer - 1 point, no answer - 0 points, the student did not start work - (-2) points.

3) – Homework must be completed by all students for admission to the final certification. For work not submitted on time, a deduction of -1 point will result from the final score.

4) - Criteria for assessing the report-presentation. Recalculation from 100-point to 10 (5)-point system

5) - Criteria for assessing the abstract. Maximum 10 points. Possible development into a 5-point system

10 points are awarded if all the requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and one's own position is logically presented, conclusions are formulated, the article is analyzed in full, the volume is maintained, and the formatting requirements are met.

9 points are awarded if the following requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and one's own position is logically stated, Conclusions were formulated, the article was analyzed in full, but the volume was not maintained and the formatting requirements were not met.

8 points – the basic requirements for the abstract are met, but there are some shortcomings. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the abstract is not maintained; There are omissions in the design.

7 points – the basic requirements for the abstract have been met, but the following shortcomings have been made: there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; conclusions are not formulated, the volume of the abstract is not maintained; there are omissions in the design

6 points – there are significant deviations from the abstracting requirements; the topic is only partially covered; There are factual errors in the content of the abstract, there are no conclusions and a personal point of view on the problem.

5 points – there are significant deviations from the requirements for the abstract: the topic is only partially covered; factual errors were made in the presentation of materials and methods, there are no conclusions and a personal point of view on the problem, the format is not consistent.

4 points – there are significant deviations from the requirements for the abstract: the relevance of the topic is not disclosed; factual errors were made in the presentation of materials and methods, there are no conclusions and a personal point of view on the problem, the format is not consistent

3 points – there is no analysis of the relevance of the research topic, the approaches and methods used, while the scope of the abstract is formally observed.

2 points – the topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed. At the same time, the scope of the abstract and formal requirements are met

1 point – the topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed.

0 points – the student did not submit the abstract

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