

Federal State Autonomous Educational Institution of Higher Education
«Peoples' Friendship University of Russia»

Medical Institute

Recommended MCSD

SYLLABUS
(STUDY GUIDE)

Subject

Ophthalmology

Recommended for the direction of training (specialty)

31.05.01 General Medicine

Program (profile, specialization)

General Medicine

1. **Goals and objectives of the discipline:** the purpose of the "Ophthalmology" is the formation of scientific knowledge in ophthalmology and the ability to detect eye pathology, to prevent eye diseases and provide first aid to ophthalmological patients

2. **Place of discipline in the structure of EP of HE:** Discipline «Ophthalmology» refers to the basic part of Block 1 of the curriculum.

Table №1 shows the previous and subsequent disciplines aimed at the formation of the competencies of the discipline in accordance with the matrix of competencies of EP HE.

Table 1. Previous and subsequent disciplines aimed at the formation of competencies

Code and name of competences	Previous disciplines	subsequent disciplines
General professional competences		
GPC-5.2. Being able to evaluate the results of clinical, laboratory and functional diagnosis when dealing with professional tasks.	Biology, Pathophysiology, clinical pathophysiology, Propaedeutics of internal diseases	Faculty surgery
GPC-7.1 Being aware of the algorithm for making a preliminary diagnosis with the subsequent referral of the patient to the relevant medical specialist.	Propaedeutics of internal diseases	Outpatient therapy
Professional competences (type of professional activity medical activity)		
PC-1.3. Being able to provide emergency medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life.	Topographic anatomy and operative surgery	Outpatient therapy
PC-1.6. Being able to use drugs and medical devices when providing medical care in emergency or urgent forms.	Propaedeutics of internal diseases	Outpatient therapy Other clinical disciplines
PC-2.1. Mastering the skills to collect complaints, anamnesis of the patient's life and disease, as well as conduct a complete physical examination of the patient (examination, palpation, percussion, auscultation).	Propedeutics of internal diseases, General surgery	Outpatient therapy Other clinical disciplines
PC-2.2. Being able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient.	Propedeutics of internal diseases, General surgery	Outpatient therapy Other clinical disciplines
PC-2.4. Being able to refer a patient to an instrumental examination in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the	Propedeutics of internal diseases, General surgery	Outpatient therapy Other clinical disciplines

provision of medical care taking into account the standards of medical care.		
PC-2.5. Being able to refer a patient to consult with a medical specialist if there is a medical indication in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.	Propedeutics of internal diseases, General surgery	Outpatient therapy Other clinical disciplines
PC-2.7. Being able to carry out differential diagnosis with other diseases/conditions, including the urgent ones, as well as to make a diagnosis taking into account the current international statistical classification of diseases and problems related to health (ICD).	Propedeutics of internal diseases, General surgery	Outpatient therapy Other clinical disciplines
PC-3.2. Being able to prescribe medicinal drugs, medical devices and medical nutrition taking into account the diagnosis, age and clinical picture of the disease and in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.	General surgery	Outpatient therapy Other clinical disciplines
PC-3.3. Being able to prescribe non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.	General surgery	Outpatient therapy Other clinical disciplines
PC-3.4. Being able to assess the efficacy and safety of the use of drugs, medical devices, medical nutrition and other treatment methods.	General surgery	Outpatient therapy Other clinical disciplines
PC-5.4. Being able to carry out follow-up care of patients with diagnosed chronic noncommunicable diseases.	Immunology, epidemiology	Outpatient therapy Other clinical disciplines
PK-5.5. Being able to prescribe	Immunology, epidemiology	Outpatient therapy

preventive measures to patients taking into account risk factors in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.		Other clinical disciplines Evidence-based medicine
PC-6.3. Being able to keep medical records, including in the electronic form. ¹	General surgery	Outpatient therapy

3. Requirements to results of the discipline: The process of studying the discipline is aimed at the formation of the following competencies:

General professional competences (GPC):

General Professional Competence Category ¹	General Professional Competence Code and Name	General Professional Competence Achievement Indicator Code and Name
Etiology and pathogenesis	GPC-5. Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-5.2 Being able to evaluate the results of clinical, laboratory and functional diagnosis when dealing with professional tasks.
Treatment of diseases and conditions	GPC-7. Being able to prescribe treatment and monitor its efficacy and safety	GPC-7.1. Mastering skills in the methods of general clinical examination, interpretation of laboratory results, instrumental diagnostic methods.

professional competencies (PC) that correspond to the type (s) of professional activity that the specialty program is focused on (medical, research, organizational and managerial activities)

Professional Competence Code and Name	Professional Competence Achievement Indicator Code and Name
PC-1. Being able to provide emergency or urgent medical care to a patient	PC-1.1. Being able to assess the condition of a patient who needs emergency or urgent medical care. PC-1.6. Being able to use drugs and medical devices when providing medical care in emergency or urgent forms.
PC-2. Being able to examine a patient in order to determine a diagnosis	PC-2.1. Mastering the skills to collect complaints, anamnesis of the patient's life and disease, as well as conduct a complete physical examination of the patient (examination, palpation, percussion,

¹На усмотрение ФУМО (при отсутствии в ФГОС)

	<p>auscultation).</p> <p>PC-2.2. Being able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient.</p> <p>PC-2.4. Being able to refer a patient to an instrumental examination in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-2.5. Being able to refer a patient to consult with a medical specialist if there is a medical indication in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-2.7. Being able to carry out differential diagnosis with other diseases/conditions, including the urgent ones, as well as to make a diagnosis taking into account the current international statistical classification of diseases and problems related to health (ICD).</p>
<p>PC-3. Being able to prescribe treatment and monitor its efficacy and safety</p>	<p>PC-3.2. Being able to prescribe medicinal drugs, medical devices and medical nutrition taking into account the diagnosis, age and clinical picture of the disease and in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-3.3. Being able to prescribe non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-3.4. Being able to assess the efficacy and safety of the use of drugs, medical devices, medical nutrition and other treatment methods.</p>
<p>PC-5. Being able to carry out preventive measures and measures to promote a healthy lifestyle and sanitary and hygiene education among population and monitor their effectiveness</p>	<p>PC-5.4. Being able to carry out follow-up care of patients with diagnosed chronic noncommunicable diseases.</p> <p>PC-5.5. Being able to prescribe preventive measures to patients taking into account risk factors in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p>
<p>PC-6. Being able to keep medical records and organize the activities of the nursing staff</p>	<p>PC-6.3. Being able to keep medical records, including in the electronic form.</p>

As a result of study of discipline a student must:

Know: Students must know and use the technique of examination of all parts of the conjunctiva, eversion of the upper eyelid, palpation of the lacrimal sac, therapeutic massage of the lacrimal sac. The methods of the examination of intraocular pressure by palpation, methods of lateral illumination for examination the anterior segment of the eye, evaluate the transparency of intraocular mediums by transmitted light, the method of determining the size, curvature, sensitivity and integrity of the cornea, determining acuity and color vision, examination of the vision fields with the help of perimeter and control method, the detection and determination of the binocular vision. Determining of clinical refraction.

Be handy at: to make the preliminary diagnosis of common eye diseases and injuries. To provide first medical assistance and to decide on further tactics in the cases of inflammatory diseases of the eye, eye burns, blunt and penetrating eye injuries, to determine the connection between the common and the pathological process in the patient with diseases of the organ of vision and to give medical recommendations to establish a knowledge of the epidemiology of the role of environmental factors, genetic and social factors of modern achievements of ophthalmology necessary measures to prevent the occurrence of epidemic outbreaks of infectious diseases, damage of the visual organ and of developing severe forms of disability from blindness.

Manage: main methods of examination of the visual organ. Prescription glasses for myopia, hypermetropia, presbyopia, aphakia. To instill drops, ointment lay in the conjunctival cavity, rinse conjunctival cavity, to remove superficial foreign body from conjunctiva and cornea, to make monocular and binocular impose aseptic bandage, to full medical documentation (medical history, patient card)

4. The volume of disciplines and types of academic work

General credit value of the discipline is 3 credit units (108 hours)

№	Type of study load	Total hours	Semesters			
			8			
1.	Class hours (total)	72	72			
1.1	Lectures		-	-	-	-
1.2	Other:		-	-	-	-
1.2.1	<i>Practical classes(PC)</i>	72	72	-	-	-
1.2.2	Seminars(S)					
1.2.3	Laboratory research (LR)	-	-	-	-	-

2.	Self-study (academic hours)	36	36			
2.1	course project	2	2		-	-
2.2	report	2	2		-	-
2.3	Preparation and passage of intermediate attestation	15	15			
2.4	Other kinds of independent work	17	17		-	-
3.	final attestation	test	test	-	-	-
	Total workload (academic hours)	108	108			
	Credit Unit	3	3			

5. Content of the discipline

5.1. The content of the discipline sections

№ п/п	Modules	Content of the modules
1.	Introduction	1.1. The history of ophthalmology. 1.2. The main tasks of General practitioners; the problem of ocular morbidity and blindness. 1.3. Evolution of the vision organ and the development of the human eye.
2.	Anatomy	2.1 Three parts of the visual analyzer. Anatomy of the orbit. 2.2 Protective apparatus of the eye. Conjunctiva. 2.3 Lacrimal organs. Tear secretion and evocation. 2.4 Tunics of the eyeball. Vitreous body.
3	Examination of the anterior and posterior segments of the eye	3.1 examination of the eye with the side light and in transmitted light. The basics of biomicroscopy. Gonioscopy. 3.2 Normal eye fundus. 3.3 the technique of skiascopy. 3.4 the technique of ophthalmoscopy.
4	Methods of examination of eye function	4.1 Central and peripheral vision. 4.2 changing of the vision fields. 4.3 visual field defects. Blind spot. 4.4 colour vision. Disorders of color perception. 4.5 Light perception. Light adaptation.
5	Visual acuity. Refraction. Accommodation.	5.1 Opticsystem of the visual organ. 5.2 Visual acuity. 5.3 Physical and clinical refraction. 5.4 Accommodation and convergence.
6	Clinic refraction. Astigmatism. Presbyopia. Optic correction of refractive errors	6.1 refractive errors. Correction. 6.2 Astigmatism, its types, principles of correction. 6.3 Presbyopia, principles of correction. 6.4 refractive surgery.
7.	Binocular vision. The strabismus.	7.1 Binocular vision. 7.2 Strabismus, types. Reasons. 7.3 Amblyopia. Classification.

		7.4 treatment of strabismus.
8.	Diseases of eyelids, lachrymal organs, of the orbit.	8.1 Diseases of the eyelids. Congenital anomalies of the eyelids. 8.2 Diseases of the lachrymal organs. Differential diagnosis. The methods of treatment. 8.3 Diseases of the orbit. Tumors of the orbit.
9.	Diseases of the conjunctiva	9.1 Acute infectious conjunctivitis. Classification. Treatment. 9.2 Chronic conjunctivitis. Classification. Treatment. 9.3 Allergic conjunctivitis. Classification. Treatment. 9.4 Degenerative changes the conjunctiva. Tumors of the conjunctiva. Treatment.
10.	Diseases of the cornea and sclera	10.1 General symptoms of cornea diseases. Exogenous keratitis. 10.2 Endogenous keratitis. Etiology, clinical symptoms, treatment. 10.3 corneal ulcer. Etiology, clinical picture, treatment. 10.4 Avitaminoses of the cornea. 10.5 Outcomes of keratitis. Treatment of keratitis and their consequences. 10.6 Sclerites. The clinical symptoms.
11	Diseases of the vascular tunic	11.1 Iritis. Iridocyclitis. Clinical picture, diagnostics, treatment. 11.2 Chorioretinitis. Clinical picture, diagnostics, treatment. 11.3 Degenerative changes in the vascular tunic. Congenital anomalies. 11.4 Tumors of the vascular tunic. Diagnosis. Treatment.
12	Diseases of the retina and optic nerve	12.1 Retinite. Retinal changes in the cases of systemic diseases. The clinical picture. Treatment. 12.2 Degenerative changes of the retina. The clinical picture. Treatment. 12.3 Inflammatory and not inflammatory diseases of the optic nerve. Features of the clinical picture. Treatment. 12.4 Congenital anomalies and tumors of the retina and optic nerve. Features of diagnostics and treatment.
13	Glaucoma	13.1 Definition of glaucoma. Normal and elevated IOP, 13.2 Etiology, pathogenesis and classification of glaucoma. 13.3 Acute attack of glaucoma. Features of the clinical picture. Treatment. 13.4 Absolute glaucoma. The clinical picture. Treatment. 13.5 Early diagnosis of glaucoma. Methods of treatment of glaucoma.
14	Diseases of the crystalline lens. Prevention and treatment	14.1 Definition of cataract. Classification of cataracts. Link cataracts development with systemic diseases. 14.2 Modern principles of treatment of cataract. 14.3 Diseases of the vitreous body.
15	Damage to the organ of vision and their prevention. Organization of eye care	15.1 the Causes and classification of eye injuries. Damage to the eyelids. 15.2 Blunt trauma of the eye-ball. Trauma of the orbit. Diagnosis. Treatment. 15.3 eye burns. Classification. The methods of treatment. 15.4 Organization of eye care. vision disability

16	Eye diseases in tropical countries	17.1 features of ocular pathology in countries with a tropical climate. Classification of eye diseases in tropical countries. Ophthalmogерpesa (main types). 17.2 ophthalmomyiasis. Treatment, prevention. 17.3 Changes of the eye in general diseases. Treatment. 17.4 the eye diseases in cases of vitamins' deficiency, animals's and plants's poisons
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5.2. Sections of disciplines and types of classes

№	Name of the section of discipline	Lectiоns	PC	LR	Sem	StW	Total hours.
1.	Introduction		1			1	2
2.	Anatomy		3			2	5
3	Examination of the anterior and posterior segments of the eye		1.5			2	3.5
4	Methods of examination of eye function		1			2	3
5	Visual acuity. Refraction. Accomodation.		3.5			2	5.5
6	Clinic refraction. Astigmatism. Presbyopia. Optic correction of refractive errors		3			1	4
7	Binocular vision. The strabismus.		6.5			2	8.5
8	Diseases of eyelids, lachrymal organs, of the orbit.		6.5			1	7.5
9	Diseases of the conjunctiva		6.5			1	7.5
10	Diseases of the cornea and sclera		6.5			1	7.5
11	Diseases of the vascular tunic		6.5			2	8.5
12	Diseases of the retina and optic nerve		6.5			2	8.5
13	Glaucoma		6.5			2	8.5
14	Diseases of the crystalline lens. Prevention and treatment		6.5			2	8.5
15	Damage to the organ of vision and their prevention. Organization of eye care		3			1	4
16	Eye diseases in tropical countries		4			2	6
17	Preparation of the project (presentation), writing of the medical history, preparation for the final attestation					10	10
	Total:		72			36	108

7. Practical training (seminars) (if available)

№ II/II	Name of the section of discipline	Themes	Intensity (hours)
1.	1	Introduction	1
	2	Anatomy	3
	3	Examination of the anterior and posterior segments of the eye	1.5

	4	Methods of examination of eye function	1
2	5	Visual acuity. Refraction. Accomodation.	3.5
	6	Clinic refraction. Astigmatism. Presbyopia. Optic correction of refractive errors	3
3	7	Binocular vision. The strabismus.	6.5
4	8	Diseases of eyelids, lachrymal organs, of the orbit.	6.5
5	9	Diseases of the conjunctiva	6.5
6	10	Diseases of the cornea and sclera	6.5
7	11	Diseases of the vascular tunic	6.5
8	12	Diseases of the retina and optic nerve	6.5
9	13	Glaucoma	6.5
10	14	Diseases of the crystalline lens. Prevention and treatment	6.5
11	15	Damage to the organ of vision and their prevention. Organization of eye care	3
	16	Заболевания глаза в тропических странах	4
	total		72

8. Material and technical support of the discipline:

- educational audiences of the Department of Eye Diseases
- educational and research laboratory of innovative methods of diagnosis and treatment of eye diseases
- computer / laptop with installed software, multimedia projector with screen,
- demonstration tables, models,
- the translation system from the ophthalmologic operating room "Living Surgery"
- ophthalmologic diagnostic equipment: Golovin-Sivtsev tables, phoropter, electronic sign projector, slit lamp, ophthalmoscopes direct / indirect, skiascopic rulers, perimeter, Maklakov's tonometer, pneumotonometer, AB scan, fundus camera, retinotomograph, sets of microsurgical instruments,
- operating stereomicroscope.

9. Information support of discipline

a) Software:

1. Microsoft Office
2. Multimedia guide (Atlas of Ophthalmology)
3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive DVD-ROMS Duration approx 35 hrs. (Video LIX)

b) databases, reference and search systems:

- <https://esystem.rudn.ru/>
- Scientific electronic library <http://elibrary.ru/>
- All news of ophthalmology www.eyenews.ru
- Russian ophthalmology online www.eyepress.ru
- Medical portal glazamed.ru
- Download books on ophthalmology <http://www.booksmed.com/oftalmologiya/>
- <http://emedicine.medscape.com/ophthalmology>

- <http://www.opthobook.com/>
- <http://meduniver.com/Medical/Book/95.html>

10. Educational and methodical support of the discipline:

a) Main literature

1. Kanski Jack J. Synopsis of Clinical Ophthalmology / J.J. Kanski, B. Bowling. - Third Edition ; Книга на английском языке. - Great Britain : Elsevier, 2013. - 438 p.
2. Kanski Jack J. Clinical Ophthalmology: A Systematic Approach . - 6th ed. - Oxford : Elsevier Butterworth-Heinemann, 2007. - 931 p.

б) additional literature:

1. *A Visual Field Evaluation with Automated Devices 2nd edition_Reddy_2006*
2. *ABC of eyes, 4th edicition. BMJ Books, 2004*
3. *Angle Closure Glaucoma_Hong,Yamamoto_2007*
4. *Atlas of Glaucoma, Second Edition_Choplin, Lundy_2007*
5. *Basic Ophthalmology. Bradford, 2004*
6. *Bloome Michael A. , Garcia Charles A. Manual of retinal and choroidal dystrophies [Текст] - New York : Appleton-Century-Crofts, 1982. - 129 p.*
7. *Cataract and Refractive Surgery_Kohnen, Koch_2008*
8. *Clinical ophthalmology [Текст] / Ed. by Stephen Miller. - Bristol : Wright, 1987. - 599 p.*
9. *Common eye diseases and their management, 3rd edition, Springer, 2006*
10. *Current concepts in cataract surgery: Selected proceedings of the seventh biennial cataract surgical Congress [Текст] / Ed. Jared M.Emery, Adrienne C.Jacobson. - New York : Appleton-Century-Crofts, 1982. - 338 p*
11. *Hammerschlag Steven B. Hesselink John R., Weber Alfred L. Computed tomography of the eye and orbit . - Norwalk; Connecticut : Appleton-Century-Crofts, 1983. - 283 p. :*
12. *Hobbs H.E. Principles of ophthalmology. - London : William Heinemann medical books ltd, 1965. - 240 p.*
13. *Microsurgery of the eye: Main aspects / Ed. by S.N.Fyodorov. - Moscow : Mir, 1987. - 267 p.*
14. *Ophthalmology Lecture Notes For Health Science Students (PDF) Dereje Negussie, Yared Assefa, Atotibebu Kassa, Azanaw Melese University of Gondar, 2004*
15. *Puckovskaja N.A.The pathogenesis and treatment of eye burns and their sequelae / Transl. from the Russ. by A.Aksenov. - Moscow : Mir, 1976. - 207 p.*
16. *Somerset Edward John. Ophtalmology in the tropics: A practical handbook. - London; Bailliere : Tindall & Cox, 1962. - 171 p*

11. Guidelines for students on the development of the discipline (module)

1. Classroom work.

In each practical lesson (modular unit) are provided:

- topic and questions to study;
- a specific list of skills and abilities that a student must master;
- at the end of each lesson are given control questions and tasks that allow you to determine the success of the assimilation of the studied material.

2. Independent work

Independent work of students in extracurricular hours can take place in the RUDN library and the medical library, where students can study the material using the presentations prepared by the teachers of the Department, educational and scientific literature, and also with the use of the telecommunications electronic system esystem.rudn.ru

Out-of-class independent work of the student includes:

- Study of the material on the textbook, manuals on paper and electronic media, on educational materials in the telecommunications electronic system esystem.rudn.ru
- Preparation of a presentation/essay on the selected topic.
- Filling in the educational version of the history of the ophthalmological patient
- Preparation for performance of control works and test task
- performing tasks in the telecommunications electronic system of the RUDN esystem.rudn.ru

The requirements for writing essays

The essay is an independent research work of the student, certain rules must be observed:

- it is unacceptable to copy the text from a book or work posted on the Internet, without its own interpretation of the material, given the rules of citation;
- be sure to use only reliable sources;
- the volume of the abstract should be at least 10 sheets written by hand and consist of the title page, introduction (relevance of the problem), the content reflecting the essence of the topic and the stages of development of certain processes leading to the development of the studied problems, conclusions and references (at least 5 sources);

- the student at his level should fully disclose the essence of the problem under study (pathological process or disease), give the data obtained by different authors in the study of this pathology.

12. Fund of estimated means for the interim assessment of students in the discipline (module)

Funds of evaluation tools for the discipline are presented in educational and methodical complexes developed in support of this educational program.

The funds of evaluation tools include: standard tasks; control works; tests and control methods (colloquiums, credit, exam), allowing to assess the knowledge, skills and level of acquired competencies, etc. the Set of evaluation tools is determined by the teacher individually. Test tasks and tests are grouped in accordance with the main sections of the course and are used in laboratory/practical classes, as well as as an integral part of the intermediate and final control of students ' knowledge during examinations, colloquiums, tests and exams.

Materials for assessing the level of development of educational material of the discipline "Ophthalmology" (evaluation materials), including a list of competencies indicating the stages of their formation, a description of indicators and criteria for evaluating competencies at various stages of their formation, a description of assessment scales, standard control tasks or other materials necessary for assessing knowledge, skills, skills and (or) experience of activities that characterize the stages of competence formation in the process of mastering the educational program, methodological materials that define the procedures for evaluating knowledge, skills, skills and (or) work experience that characterize the stages of competence formation are developed in full and are available to students on the discipline page in the TUIS RUDN esystem.rudn.ru

The program was compiled in accordance with the requirements of the SE HE RUDN University.

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