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**Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University
Institute of Medicine**

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Ophthalmology

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Medicine

higher education programme profile/specialisation title

1. COURSE GOAL(s)

The goal of the course “Ophthalmology” is to equip students with the 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 age, to carry out prevention and provide first aid to patients, taking into account further education and professional activities.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) “Ophthalmology” is aimed at the development of the following competences /competences in part: GPC-5, GPC-7, PC-1, PC-2, PC-3, PC-5, PC-6.

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	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.
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.

PC-1	Being able to provide emergency or urgent medical care to a patient	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.
		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, auscultation).
		PC-2.2. Being able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient.

		<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.</p>	<p>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>

		PC-3.4. Being able to assess the efficacy and safety of the use of drugs, medical devices, medical nutrition and other treatment methods.
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	PC-5.4. Being able to carry out follow-up care of patients with diagnosed chronic noncommunicable diseases.
		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.
PC-6	Being able to keep medical records and organize the activities of the nursing staff	PC-6.3. Being able to keep medical records, including in the electronic form.

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-5.2.	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 Therapy
GPC-7.1.	Mastering skills in the methods of general clinical examination, interpretation of laboratory results, instrumental diagnostic methods.	Propaedeutics of internal diseases	Policlinic Therapy

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	Policlinic 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	Policlinic 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).	Propaedeutics of internal diseases, general surgery	Policlinic 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.	Propaedeutics of internal diseases, general surgery	Policlinic 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 provision of medical care	Propaedeutics of internal diseases, general surgery	Policlinic Therapy, Other clinical disciplines
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	Propaedeutics of internal diseases, general surgery	Policlinic Therapy, Other clinical disciplines

	into account the standards of medical care.		
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).	Propaedeutics of internal diseases, general surgery	Policlinic 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	Policlinic 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	Policlinic 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	Policlinic Therapy, Other clinical disciplines
PC-5.4.	Being able to carry out follow-up care of patients with diagnosed	Immunology, epidemiology	Policlinic Therapy, Other clinical disciplines

	chronic noncommunicable diseases		
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.	Immunology, epidemiology	Other clinical disciplines, Доказательная медицина
PC-6.3.	Being able to keep medical records, including in the electronic form.	general surgery	Policlinic Therapy, Other clinical disciplines

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course “Ophthalmology” is 3 credits (108 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			
		8			
<i>Contact academic hours</i>	75	75			
including:					
Lectures (LC)					
Lab work (LW)	75	75			
Seminars (workshops/tutorials) (S)					
<i>Self-studies</i>	27	27			
<i>Evaluation and assessment (exam/passing/failing grade)</i>	6	6			
Course workload	academic hours	108	108		
	Credits	3	3		

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
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Module 1 Introduction	1.1. The history of ophthalmology.	LW
	1.2. The main tasks of General practitioners; the problem of ocular morbidity and blindness.	LW
	1.3. Evolution of the vision organ and the development of the human eye.	LW
Module 2 Anatomy of the eyeball	2.1 Three parts of the visual analyzer. Anatomy of the orbit.	LW
	2.2 Protective apparatus of the eye. Conjunctiva.	LW
	2.3 Lacrimal organs. Tear secretion and evocation.	LW
	2.4 Tunics of the eyeball.	LW
	2.5 Structures of the eyeball.	LW
Module 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.	LW
	3.2 the technique of ophthalmoscopy.	LW
Module 4 Methods of examination of eye function	4.1 Central and peripheral vision.	LW
	4.2 Changes of the vision fields.	LW

	4.3 Colour vision. Disorders of color perception.	LW
	4.4 Light perception. Light adaptation.	LW
Module 5 Visual acuity. Refraction. Module 6 Accommodation.	5.1 Optic system of the visual organ.	LW
	5.2 Visual acuity. 5.3 Physical and clinical refraction.	LW
	5.4 Accommodation and convergence.	LW
Module 7 Clinical refraction. Astigmatism. Presbyopia. Correction of refractive errors.	6.1 Clinical refractive errors. Hypermetropia and myopia	LW
	6.2 Astigmatism, its types, principles of correction.	
	6.3 Presbyopia, principles of correction.	LW
	6.4 Refractive surgery.	LW
Module 8 The muscles of the eye. Binocular vision. Strabismus.	7.1 Binocular vision. Disorders of binocular vision.	LW
	7.2 Strabismus, types. reasons.	
	7.3 Amblyopia. Classification.	LW

	7.4 Treatment of strabismus.	LW
Module 9 Diseases of eyelids, lachrymal organs, of the orbit.	8.1 Diseases of the eyelids. Congenital anomalies of the eyelids.	LW
	8.2 Diseases of the lachrymal organs. Differential diagnosis. The methods of treatment.	LW
	8.3 Diseases of the orbit. Tumors of the orbit.	LW
Module 10 Diseases of the conjunctiva	9.1 Acute infectious conjunctivitis. Classification. Treatment.	LW
	9.2 Chronic conjunctivitis. Classification. Treatment.	LW
	9.3 Allergic conjunctivitis. Classification. Treatment.	LW
	9.4 Degenerative changes the conjunctiva. Tumors of the conjunctiva. Treatment.	LW
Module 11 Diseases of the cornea and sclera	10.1 General symptoms of cornea diseases. Exogenous keratitis.	LW
	10.2 corneal ulcer. Etiology,	LW

	<p>clinical picture, treatment.</p> <p>10.3 Avitaminoses of the cornea.</p>	LW
	<p>10.4 Outcomes of keratitis. Treatment of keratitis and their consequences.</p>	LW
	<p>10.5 Sclerites. The clinical symptoms.</p>	LW
<p>Module 12 Diseases of the vascular tunic</p>	<p>11.1 Uveitis. Etiology and classification.</p>	LW
	<p>11.2 Iritis. Iridocyclitis. Clinical picture, diagnostics, treatment.</p>	LW
	<p>11.3 Chorioretinitis. Clinical picture, diagnostics, treatment.</p>	LW
	<p>11.4 Degenerative changes in the vascular tunic. Congenital anomalies.</p>	LW
	<p>11.5 Tumors of the vascular tunic. Diagnosis. Treatment.</p>	LW
<p>Module 13 Diseases of the retina and optic nerve</p>	<p>12.1 Retinal changes in the cases of systemic diseases. The clinical picture. Treatment.</p> <p>12.2 Degenerative changes of the retina. The clinical picture. Treatment.</p> <p>12.3 nflammatory and not inflammatory diseases of the optic nerve. Features of the clinical picture. Treatment.</p>	LW

	12.4 Congenital anomalies and tumors of the retina and optic nerve. Features of diagnostics and treatment.	
Module 14 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 Methods of treatment of glaucoma.	LW
Module 15 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.	LW
Module 16 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.	LW
	15.2 Blunt trauma of the eye-ball. Trauma of the orbit. Diagnosis. Treatment.	LW

	15.3 Eye burns. Classification. The methods of treatment.	LW
	15.4 Organization of eye care. vision disability.	
	15. Eye prosthetics.	LW
Module 17 Eye diseases in tropical countries	16.1 features of ocular pathology in countries with a tropical climate. Classification of eye diseases in tropical countries. Trachoma.	LW
	16.2 Ophthalmohelminthiasis (main types).	LW
	16.3 Ophthalmomyiasis. Treatment, prevention.	LW
	16.4 Change of the eye in general diseases. Treatment.	LW
	16.5 the eye diseases in cases of vitamins' deficiency, animals's and plants's poisons.	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

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational/laboratory equipment, software and materials for the mastering of the discipline
Seminar	Audience for practical training, equipped with a set of specialized furniture; board (screen) and technical means for multimedia presentations. (clinical base MSP AC "international airport "Vnukovo ")	<p>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.</p> <p>Software:</p> <ol style="list-style-type: none"> 1. Microsoft Office 2. Multimedia guide (Atlas of Ophthalmology). 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16 Interactive

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational/laboratory equipment, software and materials for the mastering of the discipline
		DVD-ROMS Duration approx 35 hrs. (Video LIX)
Lab work	An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and equipment. (clinical base hospital of Buyanov)	computer / laptop with installed software, multimedia projector with screen, demonstration tables, models, the translation system from the ophthalmologic operating room "Living Surgery" 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)
Seminar	An auditorium for conducting seminar-type classes, group and individual	computer / laptop with installed software,

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational/laboratory equipment, software and materials for the mastering of the discipline
	consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	<p>multimedia projector with screen, demonstration tables, models, the translation system from the ophthalmologic operating room "Living Surgery"</p> <p>Software:</p> <ol style="list-style-type: none"> 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)
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture.	<p>computer / laptop with installed software, multimedia projector with screen, demonstration tables, models, the translation system from the ophthalmologic operating room "Living Surgery"</p> <p>Software:</p> <ol style="list-style-type: none"> 1. Microsoft Office 2. Multimedia guide (Atlas of Ophthalmology). 3. Jaypee's Video Atlas of Ophthalmic Surgery. Second Edition. Includes 16

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational/laboratory equipment, software and materials for the mastering of the discipline
		Interactive DVD-ROMS Duration approx 35 hrs. (Video LIX)

* The premises for students' self-studies are subject to **MANDATORY** mention

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

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

Additional readings:

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. 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.
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1. Hammerschlag Steven B. Hesselink John R., Weber Alfred L. Computed tomography of the eye and orbit . - Norwalk; Connecticut : Appleton-Century-Crofts, 1983. - 283 p. :
 2. Hobbs H.E. Principles of ophthalmology. - London : William Heinemann medical books ltd, 1965. - 240 p.
 3. Microsurgery of the eye: Main aspects / Ed. by S.N.Fyodorov. - Moscow : Mir, 1987. - 267 p.
 4. OphthalmologyLectureNotesForHealthScienceStudents(PDF)DerejeNegussie, Yared Assefa, Atotibebu Kassa, Azanaw Melese University of Gondar, 2004
 5. 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.
 6. Somerset Edward John. Ophtalmology in the tropics: A practical handbook. - London; Bailliere : Tindall & Cox, 1962. - 171 p

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:

- Educational portal of PFUR
- 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>

*Training toolkit for self- studies to master the course *:*

1. The set of lectures on the course “Ophthalmology”

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (GPC-5, GPC-7, PC-1, PC-2, PC-3, PC-5, PC-6) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

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department of eye diseases,

PhD

position, department

signature

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name and surname

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