

MINISTRY OF HEALTH PROTECTION OF UKRAINE  
KHARKIV NATIONAL MEDICAL UNIVERSITY

Department of Ophthalmology \_\_\_\_\_

Academic year 2023-2024\_\_\_\_\_

**SYLLABUS OF THE EDUCATIONAL COMPONENT**  
**«NURSING IN OPHTHALMOLOGY»**

(the name of the educational component)

Normative or selective educational component selective\_\_\_\_\_

Form of obtaining education \_\_\_\_\_ face-to-face, distance learning \_\_\_\_\_

(full-time; part-time; remote)

Field of knowledge \_\_\_\_\_ 22 "Health care" \_\_\_\_\_

(code and name of field of knowledge)

Specialty \_\_\_\_\_ " 223 " \_\_\_\_\_ Nursing \_\_\_\_\_

(code and name of specialty)

Specialization (if available) \_\_\_\_\_

Educational and professional program \_\_\_\_\_ Nursing \_\_\_\_\_

First (bachelor) level of higher education

Course III (4nd y.e.)\_

The program of the educational component  
was considered at the meeting of the  
Department of Ophthalmology \_\_\_\_\_

Approved by the Methodical Commission of  
KhNMU on problems of the surgical profile

Protocol from

“ 28 ” \_\_\_\_\_ 08 \_\_\_\_\_ 2023 year № 12

Protocol from

“ 30 ” \_\_\_\_\_ 09 \_\_\_\_\_ 2023 year № 1

Head of Department



(signature)

prof . Bezditko P.A.

(surname and initials)

Head of Commission



(signature)

prof. Makarov V.V.

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**DEVELOPERS OF THE SYLLABUS:**

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(surname, first name and patronymic, position, academic title, scientific degree)

## **DATA ON TEACHERS TEACHING THE EDUCATIONAL COMPONENT**

*(surname, first name and patronymic, position, academic title, scientific degree)*

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Consultations: \_\_\_\_ (face-to-face consultations: schedule and venue; online consultations: in Google meet or MOODLE systems) \_\_\_\_\_

Location: \_\_\_\_ classes are held in the conditions of the "Research Institute of Occupational Hygiene and Occupational Diseases" of KhNMU, 3rd floor, Department of Ophthalmology; remotely in the Google meet or MOODLE systems

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## INTRODUCTION

**The syllabus of the educational component "Nursing in Ophthalmology"** is compiled in accordance with the educational and professional program of the EPP "Nursing" and the Standard of Higher Education of Ukraine (hereinafter - Standard), (hereinafter - Standard), first (bachelor's) level, field of knowledge 22 "Health Care", specialty 223 "Nursing".

### **Description of the educational component (abstract)**

The course "Nursing in Ophthalmology" lays the theoretical foundations of ophthalmology as a science (terminology, research methods, general clinical symptoms of the main eye diseases, principles of diagnosis and treatment, disease prevention) and is intended for nurses. Taking into account the international experience and modern achievements of medicine, the tactics of diagnosis and treatment of the most common and socially significant ophthalmopathologies are learned. Much attention is paid to mastering practical skills, providing qualified medical assistance, performing complex manipulations for diagnostic and therapeutic purposes, and conducting curative and preventive measures.

Practical classes involve the supervision of specialized patients at the "Research Institute of Occupational Hygiene and Occupational Diseases" and the Center for Ophthalmological Diagnostics "ZIR" according to the class schedule, as well as during individual work with cases on separate topics.

Teaching is conducted according to the principles of evidence-based medicine using the current standards (guidelines) of world professional societies. The course covers the main practical and theoretical aspects of a nurse's activity.

The subject of study of the educational component is anatomy, physiology, research methods and diseases of the eye and its accessory apparatus.

Interdisciplinary connections: with diseases of the ENT organs, maxillofacial surgery, neurology, infectious diseases and stomatology.

### **Prerequisites.**

The study of the educational component involves the prior learning of educational components in anatomy, physiology, pathomorphology and

pathophysiology, medical and bioorganic biochemistry, medical biology and microbiology, nursing in internal medicine, pediatrics, surgery and oncology, infectious disease, pharmacology, epidemiology and principles of evidence-based medicine, emergency and emergency medical care, as well as having practical skills in patient care. And their management in polyclinic and inpatient conditions.

**Post-requisites.**

The main provisions of the academic discipline must be applied when studying related disciplines during the 3rd year of study.

## **1. PURPOSE AND TASK OF THE EDUCATIONAL COMPONENT**

**1.1. The purpose of the study of the educational component** is to master the necessary knowledge and skills, as well as actions, to master the ethical and deontological foundations of vision care, based on the study of anatomy, physiology of the organ of vision, etiology and pathogenesis of diseases, their classifications and features of the clinical picture. Provide training of highly qualified specialists in the field of health care.

**1.2. The main tasks of studying the educational component** are laying the theoretical foundations of ophthalmology as a science (terminology, research methods, general clinical symptoms of the main eye diseases, principles of diagnosis and treatment, prevention of morbidity).

**1.3. Competencies and learning outcomes**, the formation of which is facilitated by the educational component (relationship with the normative content of the training of higher education applicants, formulated in terms of learning outcomes in the EPP and the Standard).

**1.3.1.** The study of the educational component ensures that students master the following **competencies**:

**Integral competences** - the ability to solve typical and complex specialized tasks and practical problems in professional activities in the field of health care, or in the learning process, which involves conducting research and/or implementing innovations and is characterized by the complexity and uncertainty of conditions and requirements.

### **General competences (GC):**

GC 1 – Ability to abstract thinking, analysis and synthesis, ability to learn and be modernly trained

GC 2 – Ability to apply knowledge in practical situations

GC 3 – Knowledge and understanding of the subject area and understanding of professional activity

GC 4 – Ability to adapt and act in a new situation

GC 5 – Ability to make a reasoned decision; work in a team; interpersonal skills

GC 6 – Ability to communicate in the state language both orally and in writing; the ability to communicate in a foreign language

GC 7 – Skills of using information and communication technologies

GC 8 – Determination and perseverance regarding the assigned tasks and assumed responsibilities

GC 9 – The ability to act socially responsibly and consciously

**Special competences (professional, subject):**

SC 1 – Interviewing skills

SC 2 – Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

SC 3 – Ability to establish a preliminary and clinical diagnosis of the disease

SC 4 – The ability to determine the necessary regime of work and rest, the nature of nutrition in the treatment of diseases

SC 5 – Ability to determine the principles and nature of treatment of diseases

SC 6 – Ability to diagnose emergency conditions

SC 7 – Ability to determine tactics and master the skills of providing emergency medical care

SC 8 – Ability to carry out medical evacuation measures

SC 9 – Skills of performing medical manipulations

SC 10 – Ability to determine the management tactics of persons subject to dispensary supervision

SC 11 – Ability to carry out a work capacity examination

SC 12 – Ability to maintain medical documentation

**1.3.2.** The study of the educational component ensures that students acquire the following **program learning results:**

PLR 1 – acquisition by a person of general and special fundamental and professionally oriented knowledge, abilities, skills, competences necessary for the

performance of typical professional tasks related to his activities in the medical field in the relevant position;

PLR 2 – knowledge of psychophysiological characteristics of a person, human health, health maintenance, disease prevention, human treatment, population health;

PLR 3 – the ability to apply acquired knowledge, skills and understanding to solve typical tasks of a doctor, the scope of which is provided by lists of syndromes and symptoms, diseases, emergency conditions, laboratory and instrumental research, medical manipulations;

PLR 4 – collection of information about the patient;

PLR 5 – evaluation of survey results, physical examination, laboratory and instrumental research data;

PLR 6 – establishment of a preliminary clinical diagnosis of the disease;

PLR 7 – determination of the nature and principles of treatment of diseases;

PLR 9 – determination of the tactics of managing the contingent of persons subject to dispensary supervision.

**1.3.3. Studying the educational component ensures the acquisition of the following **social skills (soft skills):****

- communicativeness (implemented through: the method of working in groups and brainstorming during the analysis of clinical cases, the method of presenting the results of independent work and defending them in a group),
- team work (implemented through: the method of working in groups and brainstorming during the analysis of clinical cases),
- conflict management (implemented through: business games),
- time management (implemented through: self-organization method during classroom work in groups and independent work),
- leadership skills (implemented through: a method of presenting the results of independent work and defending them in a group).





## 2. INFORMATION VOLUME OF THE EDUCATIONAL COMPONENT

Name indicators	Branch of knowledge, specialty, educational level, EPP	Characteristics of the educational component
		<b>daytime form of education</b>
The number of credits is 3.0	Branch of knowledge 22 "Health care" (code and name)	Selective
The total number of hours is 90	Specialty: 223 Nursing (code and name)  Specialization: nursing	<b>Year of training (course):</b>
		1
		<b>Semester</b>
		<b>Lectures</b>
Hours for daytime (or evening) study: classrooms - 30 independent student work -60	Educational degree: First (Bachelor)  EPP nursing	6 h.
		<b>Practical, seminar</b>
		30 h.
		<b>Laboratory</b>
		<b>Independent work</b>
		54 h.
		<b>Individual tasks:</b>
Credit		

### 2.1 Description of the educational component

#### 2.2.1 Lectures are not provided for studying the educational component

№	Topic name	Number of hours
1	Achievements and tasks of ophthalmology. Eye functions at different ages. Main diagnostic methods in ophthalmology. Refraction of the eye. "Red eye" - diagnosis, emergency care and prevention of inflammation of the eyelids, lacrimal organs, orbit, conjunctiva, cornea, choroid. Features of conjunctivitis caused by Covid-19.	2

2	Gradual decrease in vision. Presbyopia. Cataract: congenital, acquired (traumatic, complicated, secondary, senile). Glaucoma. Diagnosis, treatment, prevention. Diseases of the retina and optic nerve. Strabismus	2
3	Damage to the organ of vision and accessory eye apparatus in combat conditions. Emergency aid. Prevention, dispensation.	2
Total lecture hours		6

### 2.2.2 Seminar classes are not provided for studying the educational component

### 2.2.3 Practical classes

№ 3/II	Topic name	Number of hours	Methods teaching	Forms Control
1	Anatomical and topographic features and functions of the organ of vision. Organization of ophthalmic care in Ukraine. Nursing examination of the patient.	4	Story-explanation, presentation, video clips, video films	Oral survey (individual and face-to-face); test control, report and others
2	Refraction and accommodation. Strabismus. Diseases of the eyelids, lacrimal organs and orbit.	4	Story-explanation, presentation, video clips, video films	Oral survey (individual and face-to-face); test control, report and others

3	Diseases of the conjunctiva. Features of conjunctivitis caused by Covid-19. Diseases of the cornea, sclera. Curation.	4	Story-explanation, demonstration of patients, presentation, videos, video films, discussion, simulation game, simulation of processes and situations, "Brainstorming" method	Oral survey (individual and face-to-face); test control, report and others
4	Diseases of the vascular membrane. Stages of nursing care. Lens disease.	5	Story-explanation, demonstration of patients, presentation, videos, video films, discussion, simulation game, simulation of processes and situations, "Brainstorming" method	Oral survey (individual and face-to-face); test control, report and others
5	Glaucoma	4	Story-explanation, demonstration of patients, presentation, videos, video films, discussion, simulation game, simulation of processes and situations, "Brainstorming" method	Oral survey (individual and face-to-face); test control, report and others

6	Diseases of the retina, optic nerve. Changes in the organ of vision in general diseases	4	Story-explanation, demonstration of patients, presentation, videos, video films, discussion, simulation game, simulation of processes and situations, "Brainstorming" method	Oral survey (individual and face-to-face); test control, report and others
7	First and urgent ophthalmological aid, in the conditions of hostilities. Damage to the organ of vision. Injuries, contusions, burns. Emergencies in ophthalmology. Test.	5	Story-explanation, demonstration of patients, presentation, videos, video films, discussion, simulation game, simulation of processes and situations, "Brainstorming" method	Oral survey (individual and face-to-face); test control, individual tasks; abstracts; report; final control: credit.
		<b>30</b>		

#### 2.2.4. Laboratory classes are not provided for studying the discipline

#### 2.2.5. Independent work

№	Topic name	Number of hours	Methods teaching	Forms Control
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1	Theoretical preparation and development of practical skills for topic No. 1 "Anatomical-topographic features and functions of the organ of vision. Organization of ophthalmic care in Ukraine. Nursing examination of the patient".	7	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
2	Theoretical preparation and development of practical skills for topic No. 2 "Refraction and accommodation. Strabismus. Diseases of the eyelids, lacrimal organs and orbit"	7	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
3	Theoretical preparation and development of practical skills for topic No. 3 "Diseases of the conjunctiva. Features of conjunctivitis caused by Covid-19. Diseases of the cornea, sclera. Curation".	8	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
4	Theoretical preparation and development of practical skills for topic No. 4 "Diseases of the vascular membrane. Stages of nursing care. Lens disease".	8	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
5	Theoretical preparation and development of practical skills for topic	8	Electronic information (presentations,	Oral survey (individual and face-to-face);

	No. 5 "Glaucoma".		video materials, methodical recommendations, lectures)	test control, report and others
6	Theoretical preparation and development of practical skills for topic No. 6 "Diseases of the retina, optic nerve. Changes in the organ of vision in general diseases".	8	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
7	Theoretical preparation and development of practical skills for topic No. 7 "First and emergency ophthalmological aid in combat conditions. Damage to the organ of vision. Injuries, contusions, burns. Emergencies in ophthalmology. Test".	8	Electronic information (presentations, video materials, methodical recommendations, lectures)	Oral survey (individual and face-to-face); test control, report and others
		54		

### 3. EVALUATION CRITERIA

**3.1.** The evaluation of the educational success of education seekers is carried out on the basis of the current "Instructions for the evaluation of the educational activity of education seekers of the KHNMU"

**Current control (hereinafter referred to as CC)** is carried out by scientific and pedagogical staff at each classroom session (except for lectures). Based on the results of mastering each lesson topic, a grade is given using a 4-point system. General educational activity (GEA) is considered completed if the applicant has

completed all missed classroom classes and lectures, and the average score for all CC topics is equal to 3 points or higher. GEA points are calculated as the arithmetic average of PC points for all topics during the entire period of study of the discipline (to the nearest hundredth) according to the table. Recalculation of the average grade for the current control into a multi-point scale is carried out in accordance with the "Instructions for the evaluation of the educational activity of students of higher education at KhNMU" (order dated 08/21/2021 No. 181).

**Recalculation of the average grade for the current activity into a multi-point scale (for educational components that end with credit)**

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	200	4.22-4,23	169	3.45-3,46	138
4.97-4,99	199	4.19-4,21	168	3.42-3,44	137
4.95-4,96	198	4.17-4,18	167	3.4-3,41	136
4.92-4,94	197	4.14-4,16	166	3.37-3,39	135
4.9-4,91	196	4.12-4,13	165	3.35-3,36	134
4.87-4,89	195	4.09-4,11	164	3.32-3,34	133
4.85-4,86	194	4.07-4,08	163	3.3-3,31	132
4.82-4,84	193	4.04-4,06	162	3.27-3,29	131
4.8-4,81	192	4.02-4,03	161	3.25-3,26	130
4.77-4,79	191	3.99-4,01	160	3.22-3,24	129
4.75-4,76	190	3.97-3,98	159	3.2-3,21	128
4.72-4,74	189	3.94-3,96	158	3.17-3,19	127
4.7-4,71	188	3.92-3,93	157	3.15-3,16	126
4.67-4,69	187	3.89-3,91	156	3.12-3,14	125
4.65-4,66	186	3.87-3,88	155	3.1-3,11	124
4.62-4,64	185	3.84-3,86	154	3.07-3,09	123
4.6-4,61	184	3.82-3,83	153	3.05-3,06	122
4.57-4,59	183	3.79-3,81	152	3.02-3,04	121
4.54-4,56	182	3.77-3,78	151	3-3,01	120
4.52-4,53	181	3.74-3,76	150	<b>Less than 3</b>	<b>Not enough</b>
4.5-4,51	180	3.72-3,73	149		
4.47-4,49	179	3.7-3,71	148		
4.45-4,46	178	3.67-3,69	147		
4.42-4,44	177	3.65-3,66	146		
4.4-4,41	176	3.62-3,64	145		
4.37-4,39	175	3.6-3,61	144		
4.35-4,36	174	3.57-3,59	143		
4.32-4,34	173	3.55-3,56	142		
4.3-4,31	172	3.52-3,54	141		
4,27-4,29	171	3.5-3,51	140		
4.24-4,26	170	3.47-3,49	139		



**The assessment** of the educational component is carried out by the teacher of the group at the last practical session in accordance with the "Instructions for the evaluation of the educational activity of students of higher education at the KhNMU" (order dated 08.21.2021 No. 181). GEA is recalculated in a multi-point scale according to the table from 120 to 200 points and a mark - "credited", "not credited".

### **3.2 Questions for assessment:**

1. Visual analyzer, its importance in learning about the outside world.
2. History of the development of ophthalmology. Founders of domestic ophthalmology. Kyiv School of Ophthalmology.
3. Achievements of modern ophthalmology. Prominent ophthalmologists: V.P. Filatov, Y. Merkulov, N. O. Puchkovska, M. L. Krasnov, M. M. Krasnov, S. M. Fedorov.
4. Concept of absolute, professional and public blindness. The main causes of blindness. Prevention of blindness in adults and children.
5. Blindness. The rate of blindness. Training and employment of the blind (UTOS).
6. Formation of visual images. The role of the cerebral cortex in the act of vision. Theories of the act of sight.
7. Cornea. its structure, blood supply, properties and functions.
8. Rainbow. its structure, blood supply, properties and functions.
9. Ciliary (ciliary) body and choroid, their structure, functions.
10. Muscles of the iris and ciliary body. The retina, its structure, functions of rods and cones.
11. Anatomy of the optic nerve, features of its structure and topography.
12. Lens. Its functions, nutrition, properties.
13. Blood supply of the eyeball.
14. The structure of the orbit and its content.
15. Eyelid muscles. their function and innervation.
16. Structure of the conjunctiva. Clinical signs of her normal state.
17. Anatomy of lacrimal organs. Research methods of tear ducts.

18. External muscles of the eye, their innervation and functions.
19. Twilight vision, its disorders, research methods.
20. Study of visual acuity. Visual acuity formula.
21. Principles of building tables for determining visual acuity. Angle of view.
22. Peripheral vision and its research. Types of visual field disorders.
23. Color perception, its disorders, research methods. Theories of color perception.
24. The main elements of the refractive system of the eye. The concept of diopter.
25. Types of clinical refraction. The role of the external environment in the formation of refraction. Methods of determining refraction (objective and subjective).
26. Optical glasses and their application. Contact lenses and their use.
27. Volume and length of accommodation, its connection with refraction. Farthest and nearest points of clear vision. Accommodation and its age changes. Presbyopia.
28. Hypermetropia, its clinic, diagnosis and correction.
29. Myopia, clinic, causes of development. Complications of myopia. Prevention of progression of myopia.
30. Astigmatism, its types and correction.
31. Anomalies of the position of the eyelids (entropion, ectropion, ptosis, lagophthalmos). Causes of their occurrence, clinic, methods of treatment.
- C2. Inflammatory diseases of the eyelids, barley, chalazion. Clinic, treatment.
33. Blepharitis, their clinic and treatment
34. Dacryocystitis of adults and infants, its etiology, clinic, treatment.
35. Inflammatory diseases of the orbit (osteoperiostitis, phlegmon of the orbit, thrombosis of the cavernous sinus), clinic and treatment.
36. Methods of research of the anterior segment of the eye (focal, bifocal illumination, biomicroscopy).
37. Methods of research of optical environments of the eye
38. Clinical course and methods of treatment of acute inflammation of the mucous membrane.

39. Clinical manifestations, etiology and methods of treatment of chronic conjunctivitis.
40. Adenovirus conjunctivitis. Their clinic and treatment.
41. Features of conjunctivitis caused by Covid-19.
42. Classification of keratitis. General principles of their treatment. Clinic and consequences of keratitis.
43. Creeping corneal ulcer, its clinic and treatment.
44. Parenchymatous keratitis. His clinic and treatment.
45. Herpetic keratitis. Their diagnosis and treatment.
46. Serous iridocyclitis. Its clinical features, course, diagnosis.
47. Clinical signs of fibrinous iridocyclitis, etiology, pathogenesis, methods of treatment. Complications and consequences of iridocyclitis.
48. Glaucoma, classification of glaucoma. Methods of early diagnosis of glaucoma. The value of dispensary examination of glaucoma patients.
49. Clinical forms of primary glaucoma, treatment.
50. Differential diagnosis of primary glaucoma and cataract.
51. Acute attack of glaucoma, its clinic. Differential diagnosis with iridocyclitis.
52. Emergency care for an acute attack of glaucoma.
53. Secondary glaucoma, its causes, treatment clinic.
54. Congenital glaucoma, its causes, clinic and treatment.
55. Anomalies of the position of the lens, diagnosis, complications, treatment.
56. Congenital cataract Clinic, diagnosis, treatment methods.
57. Stages of senile cataract development. Diagnosis and treatment.
58. Diagnosis and conservative treatment of the initial stage of senility cataracts
59. Traumatic cataract. Features of its course, complications, surgical treatment.
60. Complicated cataract, its causes, treatment clinic.
61. Secondary cataract, its clinic, causes, surgical treatment.
62. Aphakia, its signs, correction.

63. The main conditions of binocular vision. The importance of binocular vision in choosing a profession.
64. Common strabismus, diagnosis, types.
65. Hidden strabismus, clinic diagnostics.
66. Imaginary strabismus, clinic diagnostics.
67. Principles of treatment of conjoint strabismus.
68. Paralytic strabismus, its signs, differential diagnosis, treatment methods. Signs of penetrating injuries of the eyeball. Emergency care for them.
69. Penetrating eye injuries complicated by the presence of a foreign body  
Methods of localization of a foreign body in the eye.
  
70. Principles of removal of intraocular foreign bodies with penetrating eye injuries
71. Features of injuries to the organ of vision received during hostilities.
72. Endophthalmitis and panophthalmitis, metalosis, sympathetic inflammation, their clinic, prevention, treatment.
73. Contusions of the eyeball, their manifestations and treatment.
74. Foreign bodies of the cornea and emergency care for them.
75. Electroophthalmia, its clinical manifestations and first aid.
76. Chemical eye burns, clinic, emergency care.
77. Thermal eye burns, clinic, emergency care.
78. Intraocular tumors, clinical course, treatment.
79. Detection of aggravation and simulation. Control methods for detecting visual acuity.
80. Establishment of a disability group due to visual impairment.
81. Ophthalmoscopy. Its species.
82. Picture of a normal fundus.
83. Optic neuritis clinic. Reasons, differential diagnosis with congestive optic disc.
84. Ophthalmoscopic picture of a stagnant disc of the optic nerve. Its value in the diagnosis of brain tumors.

85. Changes of the fundus in hypertensive disease.
86. Changes in the fundus and diabetes.
87. Changes of the fundus in blood diseases.
88. Changes of the fundus in AIDS.
89. Retinal detachment, etiology, clinic, treatment.
90. Acute retinal blood circulation disorders. Causes, clinic, treatment.

### **3.3. Control questions**

#### Content module 1

1. Visual analyzer, its importance in the recognition of the external world.
2. History of the development of ophthalmology. Founders of native ophthalmology. Kyiv School of Ophthalmology.
3. Achievements of modern ophthalmology. Prominent ophthalmologists: V.P. Filatov, .Y. Merkulov, N.O. Puchkovska, M.L. Krasnov, M.M. Krasnov, S.M. Fedorov.
4. Concept of absolute, professional and public blindness. The main causes of blindness. Prevention of blindness in adults and children.
5. Blindness. Blindness index. Education and employment of the blind (UTOS).
6. Formation of visual images. The role of the cerebral cortex in the act of vision. Theories of the act of sight.
  
7. Cornea. Its structure, blood supply, properties and functions.
8. Rainbow. Its structure, blood supply, properties and functions.
9. Ciliary body and choroid. Their structure, functions.
10. Muscles of the iris and ciliary body. The retina, its structure, functions of rods and cones.
11. Anatomy of the optic nerve, features of its structure and topography.
12. Lens. Its functions, nutrition, properties.
13. Blood supply of the eyeball.
14. The structure of the orbit and its contents.
15. Eyelid muscles. Their function and innervation.

16. Structure of the conjunctiva. Clinical signs of her normal state.
17. Anatomy of lacrimal organs. Methods of research of tear ducts.
18. External muscles of the eye. Their innervation and functions.
19. Twilight vision, its disorders, research methods. 20. Visual acuity research. Visual acuity formula.
21. Principles of building tables for determining visual acuity. Angle of view.
22. Peripheral vision and its research. Types of visual field disorders.
23. Color perception, its disorders, research methods. Theories of color perception.
24. The main elements of the refractive system of the eye. Concept of diopter.
25. Types of clinical refraction. The role of the external environment in the formation of refraction.
26. Methods of determining refraction (objective and subjective).
27. Correction of ametropia in children.
28. Optical glasses and their application. Contact lenses and their application.
29. Volume and length of accommodation, its connection with refraction. Farthest and nearest points of clear vision.
30. Accommodation and its age-related changes. Presbyopia.
31. Hypermetropia, its clinic, diagnosis and correction.
32. Myopia, its clinic, causes of development.
33. Complication of myopia. Prevention of progression of myopia.
34. Astigmatism, its types and correction.
35. Anomalies of the position of the eyelids (entropion, ectropion, ptosis, lagophthalmos). Causes of their occurrence, clinic, methods of treatment.
36. Inflammatory diseases of the eyelids, barley, chalazion. Clinic, treatment.
37. Blepharitis, their clinic and treatment
38. Chronic dacryocystitis, its etiology, clinic, treatment.
39. Phlegmonous dacryocystitis, clinic and treatment.
40. Dacryocystitis of infants, clinic and treatment.
41. Inflammatory diseases of the orbit (osteoperiostitis, phlegmon of the orbit, thrombosis of the cavernous sinus), clinic and treatment.

## Content module 2

42. Methods of research of the anterior part of the eye (focal, bifocal illumination, biomicroscopy).
43. Methods of research of optical environments of the eye.
44. Clinical course and methods of treatment of acute inflammation of the mucous membrane.
45. Clinical manifestations, etiology and methods of treatment of chronic conjunctivitis.
46. Honoblenorrhoea of infants and adults. Prevention.
47. Adenovirus conjunctivitis. Their clinic and treatment.
48. Diphtheria of the eye. Her clinic, diagnosis, treatment.
49. Differential diagnosis of follicular lesions of the conjunctiva (trachoma, folliculosis, follicular conjunctivitis).
50. General principles of trachoma treatment.
51. Stages of trachoma, their clinic. Public and personal prevention of trachoma.
52. Complications of trachoma from the eyelids and cornea.
53. Classification of keratitis. General principles of their treatment.
54. Clinic and consequences of keratitis.
55. Creeping corneal ulcer. Its clinic and treatment.
56. Parenchymatous keratitis. His clinic and treatment.
57. Herpetic keratitis. Their diagnosis and treatment.
58. Serous iridocyclitis. Its clinical features, course, diagnosis, treatment.
59. Clinical signs of fibrinous iridocyclitis, etiology, pathogenesis, treatment methods.
60. Complications and consequences of iridocyclites.
61. Treatment of iridocyclitis. Means that dilate the pupil. Indications and contraindications for their use.
62. Ways of outflow of intraocular fluid.
63. Dynamic classification of glaucoma.

64. Methods of early diagnosis of glaucoma. The value of dispensary examination of glaucoma patients.
65. Clinical forms of primary glaucoma, treatment.
66. Differential diagnosis of primary glaucoma and cataract.
67. Acute attack of glaucoma, its clinic. Differential diagnosis with iridocyclitis.
68. Emergency care for an acute attack of glaucoma.
69. Secondary glaucoma, its causes, clinic, treatment.
70. Congenital glaucoma, its causes, clinic and treatment.
71. Anomalies of lens position, diagnosis, complications, treatment.
72. Congenital cataract. Clinic, diagnosis, methods of treatment.
73. Stages of senile cataract development. Diagnosis and treatment.
74. Diagnosis and conservative treatment of the initial stage of senile cataract.
75. Traumatic cataract. Features of its course, complications, surgical treatment.
76. Complicated cataract, its causes, clinic, treatment.
77. Secondary cataract, its clinic, causes, surgical treatment.
78. Aphakia, its signs, correction.

#### Content module 3

79. The main conditions of binocular vision. The importance of binocular vision in choosing a profession.
80. Allied strabismus, diagnosis, types.
81. Hidden strabismus, clinic, diagnosis.
82. Imaginary strabismus, clinic, diagnosis.
83. Principles of treatment of cooperative strabismus.
84. Paralytic strabismus, its signs, differential diagnosis, treatment methods.
85. Signs of penetrating injuries of the eyeball. Emergency help with them.
86. Penetrating eye injuries complicated by the presence of a foreign body. Methods of localization of a foreign body in the eye.
87. Principles of removal of intraocular foreign bodies in penetrating eye injuries.
88. Complications of penetrating wounds.
89. Sympathetic inflammation, its clinic, prevention, treatment.



90. Contusions of the eyeball. Their manifestations and treatment.
91. Foreign bodies of the cornea and emergency care for them.
92. Electroophthalmia. Its clinical manifestations and first aid.
93. Endophthalmitis and panophthalmitis. Their clinic, causes, treatment.
94. Chemical eye burns, clinic, emergency care.
95. Thermal burns of the eyes, clinic, emergency care.
96. Intraocular tumors, clinical course, treatment.
97. Military medical examination for eye diseases.
98. Detection of aggravation and simulation. Control methods for detecting visual acuity.
99. Establishment of a disability group due to visual impairment.
100. Ophthalmoscopy, its types.
101. Picture of a normal fundus.
102. Optic neuritis clinic. Causes, differential diagnosis with congestive disc of the optic nerve.
103. Ophthalmoscopic picture of a congestive disc of the optic nerve. Its value in the diagnosis of brain tumors.
104. Changes of the fundus in hypertensive disease
105. Changes in the fundus and diabetes.
106. Changes of the fundus in blood diseases.
107. Changes of the fundus in AIDS.
108. Retinal detachment, etiology, clinic, treatment.
109. Acute retinal blood circulation disorders. Causes, clinic, treatment.

### **3.4. Individual tasks**

Evaluation is carried out for the performance of the teacher's tasks:

1. presentation of an essay at a practical session 0 - 2 points;
2. a report with a presentation at a practical session 0 - 3 points,
3. report at scientific and practical conferences of the department, university, writing theses, articles 0 - 5 points;

4. participation in the All-Ukrainian Olympiad - 5 - 10 points

### **3.5. Rules for challenging the assessment**

They are regulated by legal acts, which determine the procedure for challenging the assessment results. This is the Law of Ukraine "On Education", the Law of Ukraine "On Higher Education", Regulations on the Organization of the Educational Process at Kharkiv National Medical University.

3.5.1. Current assessment. Disputable issues regarding the current assessment are resolved within a week after the announcement of the results of the current control. The student of higher education has the right to apply for justification regarding the results of the current assessment and/or existing, in his opinion, violations of the procedure for conducting the control event to the teacher who conducted the assessment. The teacher, in the presence of the head of the department of oncology, substantiates the compliance with the requirements for conducting the control event and the compliance of the given assessment with the assessment criteria, which the student of higher education was familiarized with before conducting the control event.

3.5.2. Final semester (course) control. Contesting the results of the assessment is usually carried out on the day of the test, but no later than the next day after the announcement of the results. The student of higher education applies to the teacher who conducted the assessment for an explanation of the assigned grade. If the applicant disagrees with the results of the final control and/or believes that there has been a violation of the control procedure, and the justification of the teacher who conducted the evaluation according to the criteria specified in the work program of the academic discipline, from the applicant's point of view, is not objective, he has the right to apply to the dean of the faculty with an appeal statement indicating the reason for the appeal.

3.5.3. The appeal is considered by the appeal commission consisting of the dean of the faculty or his deputy, the guarantor of the educational program, the head of the department, two or three leading teachers of the department, including

the teacher who accepted the credit. The commission may include representatives of the student self-government council.

3.5.4. The appeal is considered at a meeting of the appeal commission no later than the next working day after its submission in the presence of the student. Postponement of the appeal deadline is not allowed. During the review of the appeal, a protocol is kept, in which all the comments of the commission members and conclusions regarding the evaluation are recorded.

3.5.5. The student of education is given the opportunity to retake the final control by the members of the appeal commission for a new ticket.

3.5.6. Based on the results of the appeal review, the commission makes one of the following decisions: - the assigned grade for the academic discipline corresponds to the level and quality of the work performed (given oral answers) and does not change; - the assigned grade for the academic discipline does not correspond to the level and quality of the work performed (given oral answers) and is changed to the number of points determined by the commission and a new grade is indicated in points, according to the national scale and according to the ECTS scale;

3.5.7. The decision of the appeals commission is brought to the knowledge of the applicant by the head of the appeals commission upon completion of the review of the appeal in oral form or, at the request of the applicant, in writing. The decision of the appeal commission is final and cannot be appealed.

#### **4. POLICY of the educational component**

In order to achieve the learning goals and successfully complete the course, it is necessary: to join the work from the first day; regularly attend lectures; read the material in advance, before considering it in a practical session; not to be late or miss classes; come to the department dressed in a medical gown, have a change of shoes, have a notebook, a pen with you; perform all the necessary tasks and work

every day; be able to work with a partner or as part of a group; ask for help and get it when you need it.

**Teachers' requirements.** Attendance at classes and the student's activity during practical classes must be taken into account; inadmissibility of absences and lateness to classes; it is not allowed to use a mobile phone, tablet or other mobile devices during the lesson; copying and plagiarism are not allowed; untimely performance of the assigned task. It is NOT allowed to miss practical classes for no good reason.

Curation of patients is possible if the students have appropriate uniforms, a sanitary book with a note on vaccination against diphtheria, a certificate of vaccination against Covid 19, the results of an examination for the stress of immunity after measles (or a note on vaccination).

A student of higher education with special needs can meet with the teacher or warn him before the start of classes, at the request of the student, this can be done by the head of the group. If you have any questions, please contact the teacher.

Students are encouraged to participate in scientific research and conferences on this topic.

All students of KHNMU are protected by the Regulation on Prevention, Prevention and Settlement of Cases Related to Sexual Harassment and Discrimination at Kharkiv National Medical University, developed to determine an effective mechanism for resolving conflict situations related to discrimination and sexual harassment. This Regulation was developed on the basis of the following normative legal acts of Ukraine: Constitution of Ukraine; Law of Ukraine "On Education"; Law of Ukraine "On Higher Education"; the Law of Ukraine "On Principles of Prevention and Counteraction of Discrimination in Ukraine"; Law of Ukraine "On Ensuring Equal Rights and Opportunities of Women and Men"; Convention on the Protection of Human Rights and Fundamental Freedoms; Convention on Combating Discrimination in Education; Convention on the elimination of all forms of discrimination against women; General Recommendation No. 25 to paragraph 1 of Article 4 of the Convention on the

Elimination of All Forms of Discrimination against Women; General Comment No. 16 (2005) "The equal right of men and women to enjoy economic, social and cultural rights" (Article 3 of the International Covenant on Economic, Social and Cultural Rights; UN Committee on Economic, Social and Cultural Rights); Recommendations on education in the spirit of international mutual understanding, cooperation and peace and education in the spirit of respect for human rights and fundamental freedoms (UNESCO); Concept of the State Social Program for ensuring equal rights and opportunities for women and men for the period until 2021. Kharkiv National Medical University provides education and work that is free from discrimination, sexual harassment, intimidation or exploitation. The University recognizes the importance of privacy.

All persons responsible for the implementation of this policy (employees of the deans' offices, faculties, institutes and the Center for Gender Education, members of the student self-government and ethics committee, the vice-rector for scientific and pedagogical work) observe confidentiality regarding persons who report or are accused of discrimination or sexual harassment (except in situations where disclosure is required by law and/or when disclosure by the University is necessary to protect the safety of others).

KhNMU creates a space of equal opportunities, free from discrimination of any national, racial or ethnic origin, sex, age, disability, religion, sexual orientation, gender identity, or marital status. All rights, privileges, programs and activities granted to students or employees of the university are extended to all without exception, subject to proper qualifications. The anti-discrimination and anti-sexual harassment policy of KhNMU is confirmed by the Code of Corporate Ethics and the Charter of KhNMU.

## **5. ACADEMIC HONESTY**

The Department of Ophthalmology supports zero tolerance for plagiarism. Students are expected to be willing to constantly improve their academic writing skills. In the first classes, information activities will be held on what exactly is

considered plagiarism and how to correctly conduct a research and scientific search.

## **6. RECOMMENDED BOOKS**

(up to 10 sources over the last 5 years, 2-3 of which are international)

### **Basic:**

1. "Ophthalmology: textbook" / G.D. Zhaboyedov, V.M. Serdyuk, R.L. Skrypnyk and others. - Ed.: "Medicine", 2022. - 128 p.
2. "Ophthalmology" / G.D. Zhaboyedov, R.L. Skrypnyk, O.A. Kitcha et al. - Ed.: "Medicine", 2018. - 296 p.
3. "Terminology and guidelines for glaucoma. 5th edition" / Augusta Azuara-Blanco and others. – European Glaucoma Society., 2021. – 170 p.
4. "Ophthalmology": textbook. for students higher honey. education closing IV level of accreditation / G.D. Zhaboyedov, R.L. Violinist - K.: Medicine, 2011. - 424 p.
5. Ophthalmology (textbook) / O.P. Vitovska, P.A. Bezditko, I.M. Bezkorovayna. - All-Ukrainian specialized publishing house "Medicine" - K., 2020. - 648 p.
6. "The structure of the human visual system: a study guide" / V.V. Vit. 3rd edition. - Odesa: Astroprint, 2018. - 664 p
7. "Ophthalmology": textbook. for students higher education closing and seven intern doctors. of medicine / P.A. Bezditko and others. - Kh.: Fort, 2012. - 247 p.
8. "Eye diseases. Course of lectures: teaching. manual for students higher honey. educational institutions of III-IV accreditation / G.Yu. Wenger, A.M. Soldatov. - O.: Odesa Medical University, 2003. - 176 p.
9. "Therapeutic ophthalmology": teaching. manual for students higher honey. education closing III-IV levels of accreditation and intern doctors / G.D. Zhaboyedov, A.O. Watchenko. - K.: Health, 2003. – 133 p.

10. "Ophthalmology in schemes": teaching. manual for students higher education closing IV level of accreditation / P.A. Bezditko and others. - Kh.: Golden Pages, 2008. - 80 p.

11. "Ophthalmology. Practicum" for students. higher honey. education closing IV level of accreditation, intern doctors, cadets, ophthalmologists. / G.D. Zhaboyedov, V.V. Kireev - Ed.: "Medicine", 2013. - 280 p.

12. "Clinical ophthalmology. Color atlas" / M.V. Sydorova. - Publisher: Sofia, 2010. - 192 p.

13. "Diabetic retinopathy. Pathogenesis, clinic, treatment" / M.V. Sydorova. - Kind. SMP "AVERS", 2006. - 156 p.

14. "Ocular ischemic syndrome. Modern principles of diagnosis and treatment / educational and methodological manual" / N.G. Zavgorodnia – Zaporizhzhia, Orbita-Yug, 2012. – 240 p.

**Auxiliary:**

1. "Nursing in ophthalmology" / O.M. Korkonishko - Kyiv: VSV "Medicine", 2015. - 216 p.

2. "Actual issues of ophthalmology in the practice of a family doctor" / Yu.V. Voronenko, O.H. Shekera, S.O. Rykov et al. - Kind. Zaslavskiyi, 2020. – 258 p.

3. "Ophthalmology in the practice of a general practitioner (family doctor)": educational method. manual for university students honey. education closing IV level of accreditation / S.O. Rykov et al. - Kyiv: Makros, 2010. - 143 p.

4. "Glaucoma. A guide for patients. Introductory material for doctors and medical personnel. Reference and information guide" / Y. Flamer. - Ed.: Medicine of the world, 2008. – 464 p.5. Karliychuk, M. A. «Clinical tasks for self-assessment in ophthalmology : handbook for studends of higher med. educational establishments of the 4th level of accreditation» Клінічні завдання для самооцінки з офтальмології : навч. посіб. для студ. вищ. мед. навч. закл. IV рівня акредитації / М.А. Karliychuk. - Chernivtsi, 2010. - 188 p.

6. "Keratoprosthesis" / S.A. Yakymenko - Odesa: SIMEXPRINT, 2018. - 164 p.

7. "Diagnosis and treatment of eye diseases." Wills Clinic. / D. Kalloma, B. Chang. - Kind. Medicine of the world - 1999. - 492 p.

8. "Ophthalmology. Tests and benchmarks, clinical tasks, diagnoses, principles of treatment of eye diseases and prescription of basic medicines: manual. for students higher education honey. closing IV level of accreditation and intern doctors / O.P. Kuchuk, T.B. Sykyrytska, V.I. Luchyk - Chernivtsi: BSMU, 2011. - 856 p.

9. "Ophthalmological riddle - Pterygium" / E.V. Maltsev, V.Ya. Usov, N.Yu. Krytsun – Odesa: Astroprint, 2020. – 154 p.

## **7. INFORMATION RESOURCES**

1. **Link to the page of the educational component in MOODLE**  
<http://distance.knmu.edu.ua/course/view.php?id=275>

## **8. OTHER**

### **Occupational Health**

At the first lesson of the course, the basic principles of labor protection will be explained by means of appropriate instruction. Every higher education student is expected to know where the nearest exit to the classroom is, where the fire extinguisher is, how to use it, etc.

**The procedure for informing about changes in the syllabus:** the necessary changes in the syllabus are approved by the Methodical Commission of KhNMU on problems of professional training and are published on the website of KhNMU and the website of the Department of Ophthalmology of KhNMU.