MINISTRY OF HEALTH OF UKRAINE
BOGOMOLETS NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF OPHTHALMOLOGY

"Approved"
The Vice-Rector for Scientific,
Pedagogical and Educational Work
of Bogomolets NMU, professor
_____O.M. Vlasenko
"___" _____202_ year

WORKING PROGRAM OF THE EDUCATIONAL DISCIPLINE
"Ophthalmology"

Educational level second "Master"

Field of knowledge 22 "Healthcare"

Specialty 222 "Medicine"

Educational program of the EPP "Medicine"

Qualification Master of Medicine, Doctor

Work program "Ophthalmology" for students in the field of training: field of knowledge 22 Health Care, specialty 222 "Medicine", second (master's) educational level, 4th year.
Developers:
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Salata P.M., Candidate of Medical Sciences, Assistant Professor, Department of Ophthalmology, NMU.

The work program was approved at the meeting of the cyclical methodological commission on surgical disciplines
Protocol No. 6 from " 30 " August 2024
Head of the cyclical methodological commission for surgical disciplines
Candidate of Medical Sciences, Associate Professor _____Stetsenko O.P.

Reapproved:

for 2025/2026 AD _____"_15_" September 2025, protocol No. _1__
(signature) (full name)

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1. Description of the academic discipline

<table>
<tr><td rowspan="2">Name of indicators</td><td rowspan="2">Field of knowledge, specialty, educational level</td><td colspan="2">Characteristics of the academic discipline</td></tr>
<tr><td>full-time education</td><td>correspondence form of study</td></tr>
<tr><td>Number of credits – 3</td><td>Discipline
22 Health care</td><td colspan="2">Full-time study
Regulatory</td></tr>
<tr><td>Modules – 1</td><td rowspan="4">Specialty
222 "Medicine"</td><td colspan="2">Year of preparation</td></tr>
<tr><td>Content modules – 3</td><td colspan="2">4</td></tr>
<tr><td>Individual research assignment</td><td colspan="2">Semester</td></tr>
<tr><td>Total number of hours – 90</td><td colspan="2">7-8</td></tr>
<tr><td rowspan="10">Weekly hours for full-time study:
classrooms – 40
student's independent work – 50</td><td rowspan="10">Educational level
second (master's)</td><td colspan="2">Lectures</td></tr>
<tr><td>-</td><td>-</td></tr>
<tr><td colspan="2">Practical, seminar</td></tr>
<tr><td>40 hours.</td><td>-</td></tr>
<tr><td colspan="2">Independent work</td></tr>
<tr><td>50 hours.</td><td>-</td></tr>
<tr><td colspan="2">Individual tasks</td></tr>
<tr><td colspan="2">-</td></tr>
<tr><td colspan="2">Type of control:</td></tr>
<tr><td colspan="2">final control</td></tr>
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2. Purpose, expected learning outcomes and criteria for assessing learning outcomes.

Goal: Formation of the ability to apply acquired knowledge, skills, abilities and understanding to solve typical tasks of a doctor's activity in the field of healthcare, the scope of which is provided by certain lists of syndromes and symptoms of diseases, emergency conditions, physiological conditions and diseases that require special tactics of patient management; laboratory and instrumental examinations, medical manipulations; issues of labor, judicial and military expertise and rehabilitation.

Competencies and learning outcomes, the formation of which is facilitated by discipline.

Competencies:

Integral: the ability to solve complex problems, including those of a research and innovation nature in the field of medicine. The ability to continue learning with a high degree of autonomy.

From the general competence (CC) :

GC1. Ability for abstract thinking, analysis and synthesis.

GC2. Ability to learn and master modern knowledge.

GC3. Ability to apply knowledge in practical situations situations.

GC4. Knowledge and understanding of the subject area and understanding of professional activity.

GC5. Ability to adapt and act in a new situation.
GC6. Ability to make informed decisions.
GC7. Ability to work in a team.
GC8. Ability for interpersonal interaction.
GC10. Ability to use information and communication technologies.
GC11. Ability to search, process and analyze information from various sources.
GC12. Determination and persistence in achieving goals tasks and responsibilities undertaken.
GC13. Awareness of equal opportunities and gender problems.
GC14. Ability to exercise one's rights and obligations as member of society, to be aware of the values civil (free democratic) society and the need for its sustainable development, supremacy rights, rights and freedoms of man and citizen in Ukraine.
GC15. The ability to preserve and multiply moral, cultural, scientific values and achievements of society on based on understanding history and patterns of development subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, use different types and forms of physical activity for active recreation and leading a healthy lifestyle.

Special (professional, subject) competencies (SC):

SC1. Ability to collect medical information about patient and analyze clinical data.
SC2. Ability to determine the required list laboratory and instrumental research and evaluation of their results.
SC3. Ability to establish preliminary and clinical diagnosis of the disease.
SC4. Ability to determine the required regime work and rest in treatment and prevention diseases.
SC5. Ability to determine the nature of nutrition in the treatment and prevention of diseases.
SC6. Ability to identify principles and character treatment and prevention of diseases.
SC7. Ability to diagnose emergency conditions.
SC8. Ability to determine tactics and provide emergency medical care.
SC10. Ability to perform medical manipulations.
SC11. Ability to solve medical problems in new or unfamiliar environments with incomplete or limited information, taking into account aspects of social and ethical responsibility.
SC16. Ability to maintain medical records, in including electronic forms.
SC21. Clearly and unambiguously communicate one's own knowledge, conclusions, and reasoning on health care problems and related issues to specialists and non-specialists, including students.
SC23. Ability to develop and implement scientific and applied projects in the field of health care.
SC 24. Compliance with ethical principles when working with patients and laboratory animals.
SC25. Adherence to professional and academic integrity, taking responsibility for the reliability of the scientific results obtained.

Program learning outcomes.

PLO1. Have a thorough knowledge of the structure of professional activity. Be able to carry out professional activities that require updating and integration of knowledge. Be responsible for professional development, the ability to further professional learning with a high level of autonomy.
PLO2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient to solve professional tasks in the field of healthcare.
PLO3. Specialized conceptual knowledge that includes scientific achievements in the field of health care and is the basis for conducting research, critical thinking about problems in the field of medicine and related interdisciplinary problems, including the system of early intervention.

PLO4. To identify and identify the leading clinical symptoms and syndromes (according to list 1); using standard methods, using preliminary data from the patient's history, patient examination data, knowledge about the person, his organs and systems, to establish a preliminary clinical diagnosis of the disease (according to list 2).
PLO5. Collect complaints, life and disease history, assess the patient's psychomotor and physical development, the condition of organs and body systems, and based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis (according to list 4), taking into account the patient's age.
PLO6. Establish a final clinical diagnosis by making a reasoned decision and analyzing the obtained subjective and objective data of clinical, additional examination, conducting differential diagnostics, adhering to relevant ethical and legal norms, under the supervision of a head physician in a healthcare facility (according to list 2).
PLO7. Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) for patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).
PLO9. Determine the nature and principles of treatment of patients (conservative, surgical) with diseases (according to list 2), taking into account the patient's age, in the conditions of a healthcare institution, outside it and at the stages of medical evacuation, including in field conditions, based on a preliminary clinical diagnosis, adhering to relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, if necessary, expand the standard scheme, be able to substantiate personalized recommendations under the supervision of a head physician in a medical institution.
PLO10. Determine the necessary work, rest, and nutrition regimen based on the final clinical diagnosis, adhering to relevant ethical and legal norms, by making a reasoned decision based on existing algorithms and standard schemes.
PLO14. Determine tactics and provide emergency medical care for emergencies (according to list 3) in conditions of limited time according to existing clinical protocols and treatment standards.
PLO17. Perform medical manipulations (according to list 5) in a medical institution, at home or at work based on a preliminary clinical diagnosis and/or indicators of the patient's condition by making an informed decision, adhering to relevant ethical and legal norms.
PLO18. Determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the execution of relevant documents, in a healthcare facility based on data on the disease and its course, the characteristics of the person's professional activity, etc. Maintain medical documentation regarding the patient and the population based on regulatory documents.
PLO21. Find the necessary information in professional literature and databases, other sources, analyze, evaluate and apply this information.
PLO22. Apply modern digital technologies, specialized software, and statistical methods of data analysis to solve complex healthcare problems.
PLO25. Clearly and unambiguously communicate one's own knowledge, conclusions, and reasoning on health care problems and related issues to specialists and non-specialists.
PLO27. Communicate fluently in the state language and English, both orally and in writing, to discuss professional activities, research, and projects.

Learning outcomes.

Know:

- general issues of organizing ophthalmological care;
- etiology, pathogenesis and classification of diseases of the organ of vision;
- clinical manifestations of diseases of the organ of vision;
- various clinical variants and complications of diseases of the organ of vision;
- modern standards for diagnosing diseases of the organ of vision;
- diagnostic value of laboratory and instrumental methods for studying diseases of the

organ of vision;

• criteria for diagnosing diseases of the organ of vision;

• differential diagnosis of diseases of the organ of vision;

• medical and surgical treatment, including prognosis-modifying treatment, for diseases of the organ of vision;

• standards for providing emergency care in ophthalmology; standards for providing emergency care for injuries to the organ of vision;

• the methodology for performing medical manipulations;

• risk stratification for diseases of the eye;

• primary and secondary prevention of diseases of the organ of vision;

• prognosis and performance in diseases of the organ of vision.

Be able:

• conduct a survey and ophthalmological examination of patients with diseases of the organ of vision and analyze their results;

• determine the etiological and pathogenetic factors of diseases of the organ of vision;

• analyze the typical clinical picture of diseases of the organ of vision;

• identify various clinical variants and complications of diseases of the organ of vision;

• formulate a preliminary diagnosis of diseases of the organ of vision;

• to draw up a patient examination plan, analyze data from ophthalmological, laboratory and instrumental examinations for diseases of the organ of vision ;

• conduct a differential diagnosis, substantiate and formulate a clinical diagnosis of diseases of the organ of vision;

• determine the tactics of management (recommendations regarding regimen, diet, treatment, rehabilitation measures) of the patient and prescribe medical and surgical treatment, including prognosis-modifying, for diseases of the organ of vision;

• assess the prognosis and working capacity of patients with diseases of the organ of vision;

• diagnose and provide emergency medical care in emergency situations, in case of damage to the organ of vision;

• to carry out primary and secondary prevention of diseases of the organ of vision;

• perform medical manipulations;

• demonstrate mastery of the moral and deontological principles of a medical professional and the principles of professional subordination.

Criteria for evaluating learning outcomes.

Assessment of learning outcomes in a practical lesson (current control) is carried out in each lesson in accordance with specific goals for each topic, namely 100% survey of students in the group and evaluation of all components (stages) of the lesson, which are provided for by the methodological development for studying the topic - test control, control of the implementation of practical skills, solving situational clinical tasks, written completion of tasks for independent work.

For each component (stage) of the practical lesson, the student receives a grade on a four-point traditional scale "5-4-3-2", from which the teacher forms the arithmetic average traditional grade. The traditional grade received by the student is then converted into points according to the scale provided for by the working curriculum for the discipline. If, during the formation of the arithmetic average traditional grade for the lesson, the student receives "2", then this grade is converted into 0 points.

The student's current academic performance can be assessed by the teacher with a maximum of 80 points.

Evaluation criteria.

The grade "excellent" is given to a student who has 90-100% of correct answers, has deeply and firmly mastered the material and presents it consistently, competently and logically, whose answer closely connects theory with practice. At the same time, the student does not have

difficulties when changing the task, freely copes with tasks, questions and other types of use of knowledge, shows knowledge of literature, correctly justifies decision-making, and possesses versatile skills of practical work.

A “good” grade is given to a student who has 75-89% of correct answers, firmly knows the material, answers it competently and in essence, who does not make significant mistakes in answering questions, correctly uses theoretical provisions when solving practical issues and tasks, and possesses the necessary skills and techniques for their implementation.

A grade of "satisfactory" is given to a student who has 60-74% of correct answers, but has not mastered its details, makes mistakes, does not formulate it correctly enough, violates the consistency in presenting the material, and experiences difficulties in performing practical work.

An "unsatisfactory" grade is given to a student who does not know part of the program material, makes significant mistakes, performs practical skills uncertainly, with great difficulty, and has 59% or fewer correct answers.

The final control of the discipline is carried out upon completion of the study of the discipline. For each stage of the final control, the student receives a traditional grade on a four-point traditional scale "5-4-3-2", which the teacher converts into points in accordance with the regulations for assessing the final control. The traditional grade of 2 corresponds to 0 points. The final control of knowledge is assessed at a maximum of 120 points.

The maximum number of points that a student can receive while studying the discipline is 200 points. The student's performance assessment in the discipline is rated and is set on a multi-point scale as the arithmetic average of the module's mastery and is determined according to the ECTS system and the traditional scale adopted in Ukraine.

3. Program of the academic discipline "Ophthalmology".

The curriculum of the academic discipline consists of 1 module and 3 content modules:

1. Anatomical and functional features of the organ of vision.
2. Inflammatory and dystrophic diseases of the organ of vision.
3. Damage to the organ of vision. Emergency conditions in ophthalmology.

CONTENT MODULE 1.

ANATOMICAL AND FUNCTIONAL FEATURES OF THE ORGAN OF VISION.

Topic 1. ANATOMO-TOPOGRAPHIC FEATURES OF THE ORGAN OF VISION .

Visual analyzer, its components. Eyeball - peripheral department of visual analyzer. Eyeball, its membranes. Outer membrane of the eye. Features of the structure of the sclera, its blood supply and innervation. Features of the structure of the cornea, its properties, innervation, nutrition, functions. The choroid, its three sections: iris, ciliary body, choroid. Iris, its structure, functions, blood supply, innervation. Ciliary body, structure and functions. Ciliary muscle, its features and innervation. Choroid, its structure, functions. Retina, its structure, blood supply, functions. Optic nerve, features of structure and topography, blood supply. Visual pathways. Contents of the eyeball and eye chamber. Lens, features of its structure, nutrition, functions. Vitreous body, features of its structure, nutrition, functions. Anterior chamber, its contents. Intraocular fluid, its composition and role in intraocular metabolism. Anterior chamber angle, its structure. Posterior chamber. Pathways of intraocular fluid outflow. Orbital cavity, its walls. Openings and fissures of the orbit: optic canal, superior orbital fissure, inferior orbital fissure, anterior and posterior ethmoid foramina, foramen ovale. Relation of the orbit to the accessory sinuses of the nose and cranial cavity. Contents of the orbit: orbital fat, nerves, ciliary body, oculomotor muscles: their origin and attachment, innervation, functions. Eyeball vagina (Tenon's capsule), episcleral space (Tenon's space), orbital septum (tarsoorbital fascia), their significance. Conjunctiva, its structure, properties, blood supply, innervation. Anatomical and topographic features of the eyelids, their blood supply, innervation. Eyelid muscles (orbital muscle of the eye, levator palpebrae superioris muscle), their innervation. Lacrimal organs: lacrimal apparatus and lacrimal passages. Lacrimal gland, structural features, blood supply and innervation. Accessory glands of the conjunctiva. Lacrimal fluid, its composition and functions. Lacrimal stream, lacrimal lake,

lacrimal meatus. Lacrimal passages (lacrimal puncta, lacrimal tubules, lacrimal sac, nasolacrimal duct) .

Topic 2. FUNCTIONS OF THE ORGAN OF VISION.

Examination of central vision. Visual acuity, definition. Age dynamics. Angle of vision. Principle of constructing tables for examination of visual acuity. Snellen formula. Examination of visual acuity using tables.

Color vision research. Color and its main features. Normal trichromasia. Color perception disorders. Diagnosis of color perception disorders. Polychromatic tables.

Examination of peripheral vision (field of vision). Determination of the field of vision. Normal boundaries of the field of vision, physiological scotoma (blind spot). Methods of examining the field of vision: control, perimetry, campimetry. Pathological changes in the field of vision: narrowing of the boundaries of the field of vision (concentric, local), sector-like defects, loss of half of the field of vision in both eyes (hemianopsia) and limited defects in the field of vision (scotomas). Types of scotoma (central, paracentral, peripheral, relative, absolute, negative, positive).

Light perception, definition. Adaptation. Dark adaptation. Purkinje phenomenon. Methods of studying light sensitivity (orientational, adaptometry). Hemeralopia. Types of hemeralopia (symptomatic, essential), connection with the general condition of the body, professional and everyday conditions.

Topic 3. REFRACTION AND ACCOMMODATION.

The optical system of the eye, its components. The unit of measurement of refraction is diopter. The concept of physical refraction of the eye and the age dynamics of its development. Characteristics of clinical refraction and its varieties: emmetropia and ametropia (myopia, hyperopia). Anisometropia. Subjective and objective methods of studying clinical refraction in children and adults. Age characteristics and the proportion of different types of refraction .

Emmetropia, its characteristics. Hypermetropia (farsightedness), age dynamics, distribution, classification, characteristics. Myopia (nearsightedness), modern concepts of origin and development, age dynamics, distribution, classification, characteristics, complications, prevention. Astigmatism, characteristics, types. Correction of ametropia with glasses, contact lenses in children and adults. Laser and surgical methods of correction of refractive errors.

Accommodation, characteristics. Physiological mechanism of accommodation. Spasm and paralysis of accommodation, their causes. Diagnosis of accommodation spasms and their prevention. Visual fatigue (asthenopia) and methods of its treatment. Changes in accommodation associated with age. Presbyopia and its correction depending on the initial clinical refraction and age. Hygiene of visual work in childhood and old age.

Topic 4. EYELID DISEASES.

Inflammatory diseases of the eyelids: blepharitis, stye, chalazion, eyelid abscess. Causes, clinical features, treatment. Abnormalities of the position of the eyelids (inversion, eversion of the eyelids): causes, treatment. Diseases of the neuromuscular apparatus of the eyelids (ptosis, lagophthalmos): causes, treatment. Abnormalities of the development of the eyelids (coloboma of the eyelids, ankyloblepharon, inversion, epicanthus).

Neoplasms of the eyelids (benign, malignant). Indications for surgical treatment, cryodestruction, radiotherapy, diathermocoagulation and chemotherapy.

Topic 5. DISEASES OF THE LAIRAL ORGANS.

Developmental anomalies of the lacrimal gland. Dacryoadenitis. Etiology, clinical features, principles of treatment in children and adults. Sjögren's syndrome: pathogenesis, clinical manifestations, diagnostics and treatment tactics. Neoplasm of the lacrimal gland (adenocarcinoma). Clinical features, course, diagnostic methods, treatment, prognosis. Congenital and acquired changes in the lacrimal ducts (inversion, narrowing, dislocation, overgrowth or absence of the lacrimal punctum, narrowing or obliteration of the lacrimal canaliculus, stenosis of the nasolacrimal duct). Diagnostic methods, principles of treatment.

Infantile dacryocystitis, causes, clinical signs, treatment tactics, complications. Chronic dacryocystitis, causes, clinical features, diagnostics, complications, surgical treatment methods. Acute dacryocystitis (phlegmon of the lacrimal sac), clinical features, complications, treatment tactics.

Topic 6. DISEASES OF THE CONJUNCTIVUS.

Conjunctivitis. Classification. Acute conjunctivitis, complaints, clinical signs. Conjunctival injection of the vessels of the eyeball and its difference from pericorneal. Diagnosis. Complications. Treatment. Mass prevention and sanitary-hygienic measures. Acute epidemic conjunctivitis caused by Koch-Wicks bacillus, clinical picture, treatment. Features of the clinical picture of staphylococcal, pneumococcal, diphtheria conjunctivitis, their treatment. Gonoblenorrhea in infants and adults, clinical picture, consequences, local and general treatment. Prevention of gonoblenorrhea in infants. Viral conjunctivitis (adenovirus, epidemic hemorrhagic conjunctivitis, herpetic). Features of the clinical picture, diagnostics, treatment, prevention. Chronic conjunctivitis. Complaints, features of the clinical picture, treatment. The need to identify and eliminate chronically active factors. Chronic conjunctivitis as an occupational pathology and preventive measures. Chlamydial conjunctivitis in children and adults. Trachoma. Paratrachoma. Clinical picture, differential diagnosis of trachoma with follicular conjunctivitis and paratrachoma, complications, treatment, prevention. Allergic conjunctivitis, features of the clinical picture, diagnosis, treatment.

Dystrophic changes of the conjunctiva (pterygium, pinguecula). Indications for surgical treatment.

Conjunctival tumors. Benign (dermoid, papilloma), malignant (melanoma, cancer). Indications for radiotherapy, diathermocoagulation, surgical treatment.

Topic 7. CORNEAL DISEASES.

Developmental anomalies (megalocornea, microcornea, keratoconus, keratoglobus). Keratitis. Classification. Features of the clinical picture, consequences. Exogenous infectious keratitis of bacterial origin. Clinic, diagnosis, treatment. Conditions for the occurrence of ulcerative processes in the cornea. Creeping corneal ulcer. Clinic, course, consequences. The role of chronic dacryocystitis. Treatment. Keratitis of viral etiology. Adenovirus keratoconjunctivitis, clinic, course, diagnosis, consequences, treatment. Herpetic keratitis, classification, clinic, course, diagnosis, consequences, treatment. Keratitis caused by diseases of the conjunctiva, eyelids and meibomian glands. Superficial catarrhal keratitis. Features of the clinic. Treatment. Prevention. Bacterial keratitis of endogenous origin. Syphilitic (parenchymal) keratitis. Clinic, course, consequences, diagnostics, treatment. Tuberculous keratitis. Metastatic tuberculous keratitis. Classification, clinic, course, consequences, diagnostics, treatment. Tuberculous-allergic (phlyctenulosis) keratitis. Clinic, course, consequences, diagnostics, treatment. Neurogenic keratitis. Neuroparalytic keratitis during trigeminal nerve damage. Clinical features. Fungal lesions of the cornea. Etiology, clinic, course, consequences, diagnostics, treatment. Avitaminosis keratitis. Corneal lesions in vitamin A deficiency. Xerophthalmia. Clinic, course, treatment, prevention.

Corneal dystrophies. Primary dystrophies: Grenouille nodular dystrophy, Fehr's spotted dystrophy, Bieber-Gaab-Dimmer lattice dystrophy, Messmann's dystrophy, Schneider's crystalline corneal dystrophy, familial corneal degeneration, Francois's punctate dystrophy. Secondary corneal dystrophies. Causes, clinical features and treatment.

Topic 8. ORBITAL DISEASES.

General symptoms characteristic of the inflammatory process in the orbit, methods of diagnosis of inflammatory diseases of the orbit, principles of treatment. Pathways of infection spread to the orbit (through venous and lymphatic vessels, hematogenous-metastatic). Features of the clinical picture of osteoperiostitis and tenonitis. Neoplasms of the orbit. Benign tumors (cysts, dermoid cysts, angiomas, osteomas) and malignant tumors

(sarcoma, carcinoma). Features of the clinical course. Diagnostic methods. Treatment methods.

CONTENT MODULE 2.
INFLAMMATORY AND DYSTROPHIC DISEASES OF THE EYE.
Topic 1. DISEASES OF THE VASCULAR MESH.

Inflammation of the vascular tract (uveitis). The most common causes of uveitis. Pathogenetic mechanisms of uveitis development: infectious-metastatic and toxic-allergic. Classification of uveitis by duration, localization, morphological features, etiology. Anterior uveitis (iridocyclitis), clinical picture, diagnosis, differential diagnosis with other eye diseases. Posterior uveitis (choroiditis), clinical picture, diagnosis. Principles of general and local treatment of anterior and posterior uveitis depending on the etiology and nature of the process. Consequences of uveitis. Prevention.

Dystrophic diseases of the iris and ciliary body. Causes. Forms (chronic ciliary body dysfunction, Fuchs syndrome). Clinical features, course. Differential diagnosis with anterior uveitis. Principles of treatment.

Abnormalities of the development of the choroid (coloboma of the iris, ciliary body, choroid, aniridia, pupil corectopia, polycoria, albinism, residual pupillary membrane).

Neoplasm of the choroid. Diagnosis. Treatment.

Topic 2. LENS DISEASE.

Anomalies of lens development (lenticonus and lentiglobus, lens coloboma, microphakia, spherophakia, biphakia, aphakia, ectopia of the lens, congenital dislocation and subluxation). Congenital cataract, etiopathogenesis, classification, clinical picture, diagnosis, course. Acquired cataract. Etiopathogenesis, classification. Senile cataract, classification, complaints, clinical picture, diagnosis. Cataract in general diseases, complicated cataract, secondary cataract. Causes of occurrence, characteristic clinical symptoms. Methods of cataract treatment. Indications for surgical treatment. Aphakia, clinical signs, correction methods.

Topic 3. GLAUCOMA.

Definition and cardinal clinical symptoms of glaucoma. Classification. Diagnosis of glaucoma. Methods of early diagnosis of glaucoma. Primary open-angle glaucoma, features of the clinical picture and course. Differential diagnosis of primary open-angle glaucoma with age-related cataract. Primary angle-closure glaucoma, features of the clinical picture and course. Conservative treatment of glaucoma. Indications for laser and surgical treatment. Principles of laser and surgical treatment. Regimen of a patient with glaucoma. Medical examination of patients with glaucoma. Congenital glaucoma, etiology, pathogenesis, features of the clinic and treatment. Secondary glaucoma, clinical forms, principles of diagnosis and treatment.

Topic 4. DISEASES OF THE RETINA AND OPTIC NERVE.

Anomalies of optic nerve development (coloboma, pit, pigmentation, optic disc drusen, pseudoneuritis, myelin degeneration of the disc, optic nerve hypoplasia, congenital optic nerve atrophy). Classification of optic nerve diseases. Inflammation of the optic nerve (neuritis). Papillitis and retrobulbar neuritis, etiopathogenesis, clinical picture, diagnosis, treatment tactics, consequences. Congestive optic disc, causes of development. Stages of development and features of each stage. Diagnosis. Differential diagnosis of neuritis with congestive optic disc. Principles of treatment. Inflammation of the optic chiasm and optic tracts (chiasmitis or opticchiasmal neuritis). Clinic, diagnosis, treatment. Damage to the optic cord (optic tract), clinical manifestations. The role of visual field testing in the diagnosis of chiasm and optic tract diseases. Optic nerve atrophy, etiopathogenesis, clinical picture, types of optic nerve atrophy, diagnostics, treatment tactics.

Retinal dystrophies in the macula. Hereditary macular dystrophies (Stargardt's disease, macular dystrophy, Best's dystrophy), features of the clinical picture, diagnostics, treatment. Hereditary tapetoretinal dystrophies (retinal pigment dystrophy), clinical picture, clinical

forms, diagnostics, treatment. Age-related macular dystrophy, etiology, clinical picture, clinical forms, diagnostics, treatment.
Retinal neoplasm. Retinoblastoma, etiopathogenesis, clinical picture, diagnostics, treatment, prognosis.
Congenital pathology of the vitreous body (vitreous hyperplasia, remnants of the hyaloid artery). Acquired pathology of the vitreous body (hemorrhage, destruction). Diagnostics, modern methods of treatment.

Topic 5. CHANGES IN THE ORGAN OF VISION IN COMMON DISEASES.

Changes in the organ of vision in diseases of the cardiovascular system (arterial hypotension and hypertension, atherosclerosis); in blood diseases (leukemia, anemia), toxicosis of pregnant women, kidney diseases, in patients with AIDS.
Changes in the organ of vision in diseases of the endocrine system (diabetes mellitus, thyroid diseases, pathology of the parathyroid glands, pathology of the hypothalamic-pituitary area).
Changes in the organ of vision in hereditary diseases affecting connective tissue (Marfan syndrome, Weil-Marquesani syndrome, Van Der Hove syndrome, mucopolysaccharidosis).
Changes in the organ of vision in systemic diseases: reactive arthritis (urethro-oculo-synovial syndrome, Reiter's syndrome/disease), Stevens-Johnson syndrome, Rossolimo-Melkersson-Rosenthal syndrome, Sjögren's syndrome (Sjögren, Gougerot-Sjögren), Mikulich's disease, sarcoidosis (Benner-Beck-Schaumann disease), Behçet's disease.

CONTENT MODULE 3.

TRAUMATIC INJURIES TO THE ORGAN OF VISION. EMERGENCIES IN OPHTHALMOLOGY.

Topic 1. EYE INJURIES. EMERGENCY CARE.

Classification of eye injuries.
Contusions of the organ of vision. Classification. Contusions of additional structures of the eye. Clinical symptoms, treatment. Contusions of the orbit, general symptoms. Traumatic fracture of the fundus of the orbit, superior orbital fissure syndrome, traumatic fracture of the inner and outer walls of the orbit, fracture of the walls of the bone canal of the optic nerve. Contusions of the eyeball: damage to the cornea, sclera, iris, ciliary body, hemorrhage into the anterior chamber and vitreous body, damage to the lens (traumatic cataract, subluxation, dislocation), ruptures of the choroid proper, retinal contusion, retinal tears and detachments, damage to the optic nerve. Clinical symptoms and diagnostic methods. Treatment.
Foreign bodies of the conjunctival cavity and cornea. Methods of removal.
Injuries to the organ of vision. Penetrating injuries to the eyeball, absolute and relative signs of penetrating eye injuries. Emergency care. Principles of providing specialized care. Complications (metallosis, purulent iridocyclitis, endophthalmitis, panophthalmitis, sympathetic inflammation).
Burns of the organ of vision. Classification. Clinical symptoms and features of the course of acid, alkaline and thermal burns. Burns with radiant energy. Electrophthalmia. Burns with infrared rays. Emergency care. Treatment tactics. Complications and modern methods of their treatment.
Effects of toxic substances on the eye (teardrops, asphyxiating and sneezing gases, toxic substances of general toxic and skin-penetrating action). Clinical picture. Treatment.

Topic 2. SQUARE EYE.

Binocular vision, its essence, formation and conditions necessary for the existence of binocular vision. Binocular vision disorders: monocular and simultaneous vision. Methods of studying binocular vision. The concept of correspondent and disparate areas of the retina. Fusion reflex. Scheme of action of oculomotor muscles.
Apparent and latent strabismus. Congenital strabismus: etiopathogenesis, classification, clinical picture, diagnosis, consequences. Principles of treatment of congenital strabismus.

Prevention of strabismus. Paralytic strabismus, causes, differential diagnosis with congenital strabismus, treatment tactics.

Topic 3. EMERGENCIES IN OPHTHALMOLOGY.

Acute and chronic poisonings (methanol, ethanol, nicotine, lead, carbon disulfide, ethyl gasoline, botulinum toxin, arsenic, quinine, narcotics), features of the clinical picture and course. Emergency care. Consequences.

Acute retinal circulatory disorders (acute central retinal artery occlusion, central retinal vein thrombosis), causes, clinical features, diagnostics, emergency care, treatment tactics, prognosis, consequences.

Retinal detachment, etiopathogenesis, clinical symptoms, treatment tactics, consequences.

Acute glaucoma attack. Complaints. Clinical symptoms, local and general. Course. Consequences. Differential diagnosis of acute glaucoma attack with acute iridocyclitis. Emergency care. Indications for surgical treatment.

Phlegmon of the orbital cavity. Etiology, clinical picture, emergency care, treatment tactics, prognosis. Thrombosis of the cavernous sinus, clinical picture, treatment tactics.

4. Structure of sections of the academic discipline "Ophthalmology".

STRUCTURE OF SECTIONS IN 7-8 SEMESTER (4th year)

Semester number number of study hours/number of ECTS credits	Number of sections, their numbers	Number of practical classes	Number of seminar classes	Conversion to traditional grades					Maximum number of points per discipline
				Traditional assessments				Points for completing an individual task as a type of VTS	
				"5"	**"4"**	**"3"**	**"2"**		
7-8 semester, 90/3.0	3 (No. 1-3)	10	-	8	7	5	0	-	200

Topic names	**Number of hours**					
	Day uniform					
	Total	**Including**				
		Lectures	**Practical classes**	**Seminar classes**	**CRC**	**Indus. CRC**
1	**2**	**3**	**4**	**5**	**6**	**7**
Content module 1. Anatomical and functional features of the organ of vision.						
1. Anatomical and topographic features of the organ of vision.	16		2	-	12	-
2. Functions of the organ of vision.			2	-		
3. Refraction and accommodation.			2			
4. Strabismus.			2			
5. Eyelid diseases.			2			
6. Diseases of the conjunctiva.			2			
7. Diseases of the lacrimal organs.			2			
8. Orbital diseases.			2			
Content module 2. Inflammatory and dystrophic eye diseases.						
9. Corneal diseases.	12		2	-	9	

10. Diseases of the lens.			2	-		
11. Diseases of the choroid.			2			
12. Curation.			2			
13. Glaucoma.			4			
Content module 3. Traumatic injuries of the organ of vision. Emergencies in ophthalmology.						
14. Diseases of the retina and optic nerve.			3			
15. Changes in the organ of vision in common diseases.			1			
16. Damage to the organ of vision. Emergency care.	12		4		9	
17. Emergencies in ophthalmology. Protection of medical history. Final control.			4			
Writing workbooks. Preparing for a PC, reviewing scientific literature or conducting research (individual work). Topics proposed for independent study: 1. History of the development of ophthalmology in the 17th-20th centuries. 2. Scleral diseases. 3. Vitreous disease . 4. Expertise in ophthalmology.					20	
Total hours –90		**-**	***40***		***50***	
ECTS credits – 3						
Classroom work – 44 %, CPC 56%						

5. Lecture topics.

Lectures are not included in the curriculum.

6. Topics of seminar classes.

Seminar classes are not included in the curriculum.

7. Topics of practical classes.

No.	Lesson topic	Practical classes
1 .	Anatomical and topographic features of the organ of vision. Functions of the organ of vision.	4.0
2.	Refraction and accommodation. Strabismus.	4.0
3.	Diseases of the eyelids and conjunctiva.	4 .0
4.	Diseases of the lacrimal organs and orbit.	4 .0
5.	Corneal diseases. Lens diseases.	4 .0
6.	Diseases of the choroid. Curation.	4.0
7.	Glaucoma.	4 .0
8.	Diseases of the retina and optic nerve. Changes in the organ of vision in common diseases.	4 .0
9 .	Damage to the organ of vision. Emergency care.	4 .0
10.	Emergency conditions in ophthalmology. Protection of medical history. Final control.	4 .0
Total		40

8. Topics of laboratory classes.

Laboratory classes are not included in the curriculum.

9. Independent work.

No.	Topic	Number of hours	Types of control
1.	Preparation for practical classes - theoretical preparation and development of practical skills of content module 1. 1. Determine visual acuity by a subjective method. 2. Determine the field of vision using the control method. 3. Determine color vision using Rabkin 's polychromatic tables . 4. Determine dark adaptation using an approximate method. 5. Perform eyelid examination and inversion and evaluate the results. 6. Determine the angle of strabismus by Hirschberg and evaluate the results.	12	Current control in practical classes
2.	Preparing a review of scientific literature or conducting research (individual work).	4	Current control
3.	Topics proposed for independent study: 1. History of the development of ophthalmology.	2	Final control
Content module 2			
4.	Preparation for practical classes - theoretical preparation and development of practical skills of content module 2. 1. Perform a corneal examination using focal illumination and evaluate the results. 2 . Perform corneal sensitivity testing and evaluate the results. 3. The palpator should determine the sensitivity of the ciliary body and evaluate the results. 4. Be able to conduct research on the transparent media of the eye using the ophthalmoscopic transillumination method and evaluate the results. 5. Palpate intraocular pressure and evaluate the results .	9	Current control in practical classes
5.	Preparing a review of scientific literature or conducting research (individual work).	4	Current control
6.	Topics proposed for independent study: 1. Scleral disease. 2. Vitreous disease.	2 2	Final control
Content module 3			
7.	Preparation for practical classes - theoretical	9	Current control in practical classes

	preparation and development of practical skills of content module 3. 1. Be able to provide emergency care for chemical burns . 2. Be able to provide emergency care for penetrating eye injuries . 3. Be able to provide emergency care for acute iridocyclitis. 4. Be able to provide emergency care for acute conjunctivitis . 5. Be able to provide emergency care for an acute attack of glaucoma. 6. Be able to provide emergency care for a conjunctival foreign body .		
8.	Preparing a review of scientific literature or conducting research (individual work).	2	Current control
9.	Topics proposed for independent study: 1. Expertise in ophthalmology.	2	Final control
10.	Individual educational and research tasks (IRT).		
11.	Preparation for the final examination.	2	
	Together	50	

10. Individual tasks.

- Abstract presentation at a practical session.
- Report at clinical conferences of department bases .
- Patient history report at a practical session .
- Writing theses and articles.

11. Teaching methods .

By sources of knowledge: verbal (explanation, lecture, conversation, educational discussion, story); visual (illustration, demonstration); practical (practical work, mastering practical skills), working with a book.

According to the logic of presenting the educational material: analytical, synthetic, analytical-synthetic, inductive, deductive and translational methods.

By the level of cognitive activity: explanatory-illustrative, reproductive, problem-based, partially search-based, research, problem-based presentation method.

Interactive: role-playing, work in small groups (teams), case method, creative tasks, use of educational interactive video courses, attending medical conferences, consultations, "brainstorming", "discussion".

Distance learning methods using modern educational platforms and educational resources (LIKAR.nmu, Zoom, Skype, Classroom, etc.).

12. Methods and forms of control, distribution of points received by students, evaluation.

Control methods: oral , written, test, practical.

The regulations for assessing current and final discipline control were developed in accordance with the Regulations "On the procedure for assessing students' knowledge during current and final discipline control at the Bogomolets National Medical University", approved by the Academic Council of the university (Protocol No. 1 dated 05.09.2019), instructions for assessing students' educational activities when working on the "NEURON" platform (NMU, Kyiv, 2020), methodological recommendations for working on the LIKAR_NMU distance

learning platform, approved by the decision of the Academic Council of the university (Protocol No. 10 dated 01.04.2021).

When organizing training under the credit transfer system, session-module control is used, which provides for the following types of control:

The initial knowledge control involves determining the initial level of students' knowledge in related disciplines, which is necessary for mastering the discipline that the student is studying. The results of the initial knowledge control are not taken into account in the student's current education, since they are only informative for the teacher.

Current control involves 100% surveying of students in a group during a practical lesson with mandatory assessment of all components (stages) of the lesson . For each component (stage) of a practical lesson, the student receives a grade on a four-point traditional scale "5-4-3-2", from which the teacher forms the arithmetic average traditional grade. The traditional grade received by the student is then converted into points according to the scale provided for by the working curriculum for the discipline. After the practical lesson, the teacher announces to the students their average grade.

If during the formation of the arithmetic average traditional grade for the lesson the student receives "2", then this grade is converted into 0 points. The student has the right to improve his knowledge and skills on the topic for which he was an overall score of "2" and, accordingly, 0 points, during the next training session during the current control without receiving points.

Classes that were missed by a student for any reason, including illness, are mastered by him independently in extracurricular time according to the department's regulations (by writing a summary of the academic topic, medical history, distance learning, consultations, demonstration of practical skills, etc.). The student demonstrates the summary of the missed topic to the group teacher during the next academic session or after the class, and the group teacher, upon the fact of the availability of the summary, makes a mark in the form of the letter "K" in the student attendance and performance journal in the column of the missed topic, without assigning a grade. The presence of a summary of the missed class is confirmation of the student's fulfillment of the curriculum. The teacher returns the summary of the missed class to the student. The department does not establish a separate schedule indicating the hours for accepting summaries of missed classes.

Students have the right to review the written work checked by the teacher and, in case of disagreement, appeal to the assistant head of academic work at the department. or to the head of the department.

Written academic papers, the writing of which is provided for by the curriculum for the discipline, and academic topics submitted as independent work outside of class time are also subject to evaluation .

The department also awards additional points for participation and winning prizes in all-Ukrainian and other Olympiads in the academic discipline.

Points are assigned to individual work for ongoing control by decision of the department.

The head of the department constantly monitors the current study of students in the discipline, paying special attention to students at risk (a significant number of "NB", unsatisfactory grades). At methodological meetings of the department, the results of the current study of students are discussed. For students at risk, if desired, the opportunity to provide in-depth study is offered in a timely manner, in advance, before the final control or after the last, in accordance with the procedure for providing educational services at the University.

The final score for the current activity is determined as the arithmetic sum of the scores for each activity. The sum of points accumulated by the student as a result of current studies is a component of the overall grade for the discipline . No minimum score for admission to the final examination for the discipline is set for the current examination.

The maximum number of points for current studies is 80 points .

Final control involves determining the level of knowledge and skills acquired. It is carried out upon completion of the study of the discipline. at the last lesson. It includes control of theoretical and practical training. The final control is carried out in the form of a summary control.

The volume of educational questions submitted for final control should contain the most important questions in the discipline, and should not constitute all the educational material, the study of which is provided for by the curriculum in the discipline.

Students are allowed to take the final examination in the discipline provided they attend at least 75% of classroom classes (lectures, practical classes) with the entire accumulated amount of points during the study of the discipline. Admission in terms of points is not established. The student's ability to pass the PC in the discipline is not affected by the results of passing other disciplines.

If a student has attended less than 75% (missed more than 25% of classes) of classroom classes, he is considered to have failed the curriculum and syllabus for the discipline, and therefore must re-study the discipline.

The regulations for conducting final control with a list of questions are discussed and approved at the methodological meeting of the department, the Central Medical Committee for Surgical Disciplines, approved by the Vice-Rector for Scientific, Pedagogical and Educational Work and made public before the start of training (website, stand, familiarization at the first lecture or practical session).

The final knowledge test is rated at a maximum of 120 points.

Discipline assessment.

When assigning a grade for a discipline, the student's accumulated points for current studies and the result of passing the PC in points are taken into account. The maximum number of points that a student can receive while studying the discipline is 200 points. The student's performance assessment for the discipline is rated and is assigned on a multi-point scale as the arithmetic mean of the module's mastery and is defined according to the ECTS system and the traditional scale adopted in Ukraine. The score is reflected in the relevant information. To enroll in the discipline, the total number of points received by the student must be at least the minimum, which is determined by the working curriculum for the discipline and corresponds to the minimum value of the grade E, and therefore is 111 points.

Procedure for calculating points for the discipline .

The marks given on the traditional scale are converted into points depending on the number of topics in the module. The number of points corresponding to the mark "5" is calculated by dividing the maximum number of points for the current educational activity, namely 80 , by the number of practical classes. To calculate the mark " 3 ", the number of points is calculated, which is 60% of the maximum number of points for the current educational activity. The weight of each topic within one module in points must be the same.

Distribution of points received by students.

Evaluation of current learning activities.

Traditional assessment	Conversion into points
"5"	8
"4"	7
"3"	5
"2"	0

Assessment of students' independent work, which is provided for in a practical lesson along with classroom work, is carried out during the current control of the topic in the corresponding classroom lesson. Assessment of topics that are assigned only for independent work and are not included in the topic of classroom training sessions is controlled during the final control. Writing and defending a medical history - is counted and is mandatory for admission to the final control.

Regulations for conducting final inspection.

Conducting the final (summary) control consists of answering 3 theoretical questions, writing tests on emergency conditions, performing a practical skill, and solving a situational problem.

Evaluation criteria for the final examination .
Criteria for evaluating answers to theoretical questions.

Traditional assessment	Conversion into points
"5"	24
"4"	18
"3"	13
"2"	0

Writing tests on emergency conditions (and/or oral response):
12 questions (2 points for each correct answer).
Implementation of practical skills by students.

12 points	The student performs the manipulation without any comments from the teacher.
6 points	The student can perform a manipulation with difficulties that can be eliminated with the help of the teacher.
0 points	The student cannot perform the manipulation.

Assessment for a situational task.

12 points	Full answer
6 points	Incomplete answer
0 points	Wrong answer

Assessment of the quality of learning material is carried out using the national scale and the ECTS scale.

At the same time, to pass the discipline, the total number of points received by the student must be at least the minimum, which is determined by the working curriculum for the discipline and corresponds to the minimum value of the grade E **,** and therefore is 111 points.

Correspondence of scales for assessing the quality of learning material.

Score	***National scale assessment***	***ECTS grade***	***Explanation***
170-200	Perfectly	A	Excellent (excellent performance with only a few errors).
155-169	Good	B	Very good (above average with a few errors).
140-154		C	Good (generally correct execution with a certain number of significant errors) .
125-139	Satisfactorily	D	Satisfactory (not bad, but with a significant number of shortcomings).
111-124		E	Sufficient (performance meets minimum criteria).
60—110	Unsatisfactorily	FX	Unsatisfactory (with the possibility of reassembly).
1-59		F	Unsatisfactory (with mandatory re-study of the discipline).

Procedure for liquidating academic debt.

If a student receives an unsatisfactory grade in a discipline within the range of 60-110 points (FX), he/she has the right to retake it 2 times: once - by the departmental commission with the participation of the head of the department, and the last time - by the commission with the participation of the head of the department and the dean.

Retaking of subjects with unsatisfactory grades is carried out according to the schedule drawn up by the department and agreed with the dean (the interval between attempts or subjects is at least 3 days). Subjects studied in the relevant course must be completed before the

beginning of the new academic year. The presence of academic debt before the beginning of the new academic year is grounds for expelling a student from the university for failure to fulfill the requirements of the curriculum (or for issuing an academic leave and retaking the course due to health reasons).

If a student receives an unsatisfactory grade in a discipline within the range of 1-59 points (F), he/she is required to re-study it outside of class time on a paid basis. If a student receives an unsatisfactory grade again as a result of re-studying it, taking into account two retakes of the discipline or unsatisfactory grades in 3 disciplines, as well as missed classroom classes without good reason, the sum of which is 120 hours or more, leads to his/her expulsion from the university for failure to complete the curriculum.

For the possibility of the student taking the final (summary) test The results of the other disciplines are not affected by the discipline.

Course policy .

Mandatory adherence to academic integrity by students, namely:

independent performance of all types of work, tasks, and forms of control provided for by the work program of the academic discipline "Ophthalmology";

references to sources of information when using ideas, developments, statements, and information;

compliance with the norms of legislation on copyright and related rights;

providing reliable information about the results of one's own educational (scientific, creative) activities, use of research methods and sources of information.

List of theoretical questions and practical skills for the final examination in the discipline "Ophthalmology" for students in specialty 222 "Medicine".

List of theoretical questions for the final test.

1. The visual analyzer, its importance in the cognition of the surrounding world.
2. History of the development of ophthalmology. Founders of domestic ophthalmology. Kyiv school of ophthalmology.
3. Cornea. Its structure, blood supply, properties and functions.
4. The vascular membrane. Its structure, blood supply, properties and functions.
5. The reticular membrane. Its structure, functions of rods and cones.
6. Optic nerve. Features of its structure and topography.
7. The lens. Its functions, nutrition, properties.
8. Blood supply to the eyeball.
9. The structure of the conjunctiva. Clinical signs of its normal state.
10. Eyelid muscles. Their functions and innervation.
11. Anatomy of the lacrimal organs. Research methods.
12. The structure of the eye socket and its contents.
13. External muscles of the eye. Their innervation and functions.
14. Twilight vision, its disorders, research methods.
15. Visual acuity testing. Visual acuity formula.
16. Principles of constructing tables for determining visual acuity. Angle of vision.
17. Peripheral vision, research methods. Types of visual field disorders.
18. Color perception, its disorders, research methods.
19. The main elements of the refractive system of the eye. The concept of diopter.
20. Types of clinical refraction. The role of the environment in the formation of refraction. Age-related changes in refraction.
21. Methods of determining refraction (objective and subjective).
22. Hyperopia, its clinical manifestations, diagnostics and correction.
23. Myopia, its clinical manifestations, complications, diagnosis and correction. Prevention of myopia progression.
24. Astigmatism, its types and correction.
25. Features of ametropia correction in children.

26. Accommodation and its age-related changes. Presbyopia.
27. The main conditions of binocular vision. The importance of binocular vision for choosing a profession.
28. Congenital strabismus, diagnostics, types.
29. Principles of treatment of congenital strabismus in children.
30. Latent strabismus, clinical features, diagnostics.
31. Paralytic strabismus, its signs, differential diagnosis of paralytic and concomitant strabismus, treatment methods.
32. Abnormalities of eyelid position (entropion, ectropion, ptosis, lagophthalmos). Causes of their occurrence, clinical features, treatment methods.
33. Stye, chalazion. Clinic, treatment.
34. Blepharitis, its clinical manifestations and treatment.
35. Chronic dacryocystitis, its etiology, clinical manifestations and treatment.
36. Acute dacryocystitis, clinical manifestations and treatment.
37. Infantile dacryocystitis, its etiology, clinical features and treatment.
38. Etiology, clinical picture and treatment of acute conjunctivitis.
39. Etiology, clinical picture and treatment of chronic conjunctivitis.
40. Gonoblenorrhea in infants and adults. Prevention of gonoblenorrhea in infants.
41. Adenovirus conjunctivitis. Its clinical manifestations and treatment.
42. Diphtheria of the eye. Its clinical features, diagnostics, treatment.
43. Trachoma, stages, complications, general principles of treatment. Social and personal prevention of trachoma.
44. Classification of keratitis. Clinical picture of keratitis.
45. Consequences of keratitis. General principles of keratitis treatment.
46. Creeping corneal ulcer. Its clinical features and treatment.
47. Parenchymal keratitis. Its clinical manifestations and treatment.
48. Herpetic keratitis. Their diagnosis and treatment.
49. Clinical signs of serous iridocyclitis.
50. Clinical signs of fibrinous iridocyclitis.
51. Complications of iridocyclitis.
52. Treatment of iridocyclitis. Pupil dilators. Indications and contraindications for their use.
53. Orbital phlegmon, its clinical manifestations and treatment (conservative and surgical).
54. Orbital tumors, diagnostics, clinical features, treatment tactics.
55. Congenital cataract. Etiology, clinical features, diagnostics, treatment tactics.
56. Stages of development of senile cataract. Diagnosis and treatment.
57. Traumatic cataract. Features of its course, treatment.
58. Complicated cataract. Its causes, clinical features, treatment.
59. Cataract in common diseases, treatment.
60. Secondary cataract, its clinical manifestations, causes, treatment.
61. Aphakia. Its signs, correction.
62. Anomalies of the lens position, diagnosis, complications, treatment tactics.
63. Signs of penetrating injuries of the eyeball. Emergency care for them.
64. Penetrating eye injuries complicated by the presence of a foreign body inside the eye. Methods for locating a foreign body in the eye. Principles of removal.
65. Contusions of the eyeball. Their clinical manifestations and treatment.
66. Corneal foreign bodies and emergency care.
67. Electrophthalmia. Its clinical manifestations and first aid.
68. Endophthalmitis and panophthalmitis. Their clinical features, causes, treatment.
69. Eye burns, clinic, emergency care.
70. Sympathetic inflammation, its clinical manifestations, prevention, treatment.
71. Metallosis (siderosis and chalcosis), its clinical features, treatment.
72. Ophthalmoscopy, its types. Picture of a normal fundus.

73. Pathways of outflow of intraocular fluid.
74. Dynamic classification of glaucoma.
75. Methods of early diagnosis of glaucoma. The importance of a dispensary examination of patients with glaucoma.
76. Clinical forms of primary glaucoma. Differential diagnosis of primary open-angle glaucoma and cataract.
77. Treatment of primary glaucoma.
78. Acute glaucoma attack, its clinical features. Differential diagnosis with acute iridocyclitis.
79. Emergency care for an acute attack of glaucoma.
80. Secondary glaucoma, its causes, clinical manifestations, treatment tactics.
81. Congenital glaucoma, its causes, clinical manifestations, treatment tactics.
82. Optic neuritis. Causes, clinical features, treatment tactics. Differential diagnosis with retrobulbar neuritis and congestive optic disc.
83. Ophthalmoscopic picture of congestive optic disc. Its significance in the diagnosis of intracranial cerebrospinal fluid hypertension.
84. Optic nerve atrophy, causes, clinical picture, types, treatment tactics.
85. Changes in the fundus of the eye in hypertension and diabetes mellitus.
86. Retinal detachment, etiology, clinical manifestations, treatment.
87. Acute circulatory disorders of the retina. Causes, clinical features, treatment.

List of practical skills for the final test.

Be able to determine:

1. visual acuity by subjective method ;
2. color perception using Rabkin's polychromatic tables ;
3. field of vision by control method and using arc perimeter ;
4. dark adaptation by the orientation method.

Be able to conduct research and evaluate the results:

5. examination and inversion of the eyelids ;
6. examination of the cornea using the side illumination method ;
7. examine corneal sensitivity ;
8. palpate to determine the sensitivity of the ciliary body ;
9. palpatory determination of intraocular pressure ;
10. ophthalmoscopic examination;
11. to determine the angle of strabismus according to Hirschberg.

Be able to provide emergency assistance:

12. in acute iridocyclitis ;
13. with acute conjunctivitis ;
14. with a foreign body in the conjunctiva ;
15. in acute glaucoma attack ;
16. with a penetrating eye injury ;
17. for chemical and thermal burns.

13. Methodological support.

1. Textbooks, study guides.
2. Methodological recommendations for lectures, video presentations of lectures.
3. Plans for practical classes and lectures.
4. Tasks for independent work.
5. Methodological developments of practical classes.
6. Algorithms for performing practical skills, medical manipulations, videos .
7. Standardized results of laboratory and instrumental research methods.
8. Dummies, phantoms, etc.
9. Electronic directories, computers with appropriate information support.
10. Workbooks on the topics of practical classes.

11. Test questions, situational tasks, format A test tasks for current and final control of students' knowledge and skills.

12. Theoretical questions, practical tasks for the final test.

Methodological support materials in two languages (Ukrainian, English) on the WEB page of this department (at the address https://nmuofficial.com/studentu/kafedri/kafedra-oftalmologyy/).

14. Recommended reading.

Basic

1. Ophthalmology: textbook /ed. G.D. Zhaboyedova, R.L. Skrypnyk. - K.: VSV "Medicine", 2011. - 424 p.
2. Zhaboyedov G.D., Kireev V.V. Ophthalmology: practical course: textbook. – K.: VSV “Medicine”, 2013. – 280 p.
3. Ophthalmology: textbook /OP Vitovska, P. A. Bezditko, IM Bezkorovayna et al.—2nd edition.– Kyiv: AUS Medicine Publishing, 2020. – 648 p.

Auxiliary

1. Butterbury M., Murphy K. Ophthalmology: text and color illustrations: 4th edition. – Kyiv: VSV “Medicine”, 2024. – 135 p.
2. Bezditko P.A., Panchenko M.V., Duras I.G. et al. Conjunctival diseases. Methodological guidelines for students and interns. - Kharkiv: KhNMU, 2018. - 24 p.
3. Bezditko P.A., Panchenko M.V., Duras I.G. et al. Orbital diseases. Methodological guidelines for students and interns. – Kharkiv: KhNMU, 2019. – 16 p.
4. Bezditko P.A., Panchenko M.V., Duras I.G. et al. Modern methods of ophthalmological diagnostics. Methodological guidelines for students and interns. – Kharkiv: KhNMU, 2016. – 20 p.
5. Bezkorovayna I.M., Ryadnova V.V., Voskresenska L.K. Ophthalmology. Textbook for students of higher medical institutions of III-II levels of accreditation. – Poltava: “Dyvosvit”, 2012. – 248 p.
6. Wenger G.Yu., Soldatova A.M., Wenger L.V. Ophthalmology. Lecture course: textbook – Odessa: Odessa Medical University, 2010. - 180 p.
7. Amazing Nearby. Clinical Cases in Pediatric Ophthalmology. Part 1. /Edited by N.F. Bobrova. – Odesa, 2023.- 214 p.
8. Zhaboyedov D.G., Skrypnyk R.L., Tikhonchuk N.A. Dry eye disease (features of pathogenesis, diagnostics and treatment). – K.: FOP Lopatina O.O., 2024. – 184 p.
9. Zavgorodnya N.G., Sarzhevska L.E., Ivakhnenko O.M. et al. Anatomy of the eye. Research methods in ophthalmology: a textbook for students of medical faculties. – Zaporizhzhia, 2017. – 76 p.
10. Krasnovyd T.A. Traumatic eye injuries. Intraocular foreign bodies. – Odessa: Astroprint, 2013. – 124 p.
11. Lutsenko N.S., Rudycheva O.A., Isakova O.A. et al. Macula. Modern diagnostics. Optical coherence tomography and optical coherence tomography angiography. Teaching and methodical manual. – Orbita-South Agency, 2019. – 144 p.
12. Davidson's Medicine: Principles and Practice. /Edited by Stuart G. Ralston, Ian D. Penman, Mark W. J. Stracken, Richard P. Hobson. Translation of the 23rd English edition; in 3 volumes. – Volume 3. – Kyiv: VSV "Medicine", 2021. – 642 p.
13. Microprism diagnostics and treatment of strabismus in children: collection of scientific papers: Institute of Information Registration Problems of the NAS of Ukraine, 2020. – 316 p.
14. Novytsky I.Ya. Modern surgery of primary open-angle glaucoma. Transition to minimally invasive operations. - Lviv: Litopys, 2018. - 120 p.
15. Novytskyi I.Ya., Demchuk V.V., Gvozdaryova T.A. Static perimetry in the glaucoma clinic. – Lviv: Litopys, 2020. – 68 p.
16. Fundamentals of clinical ophthalmology: textbook /ed. Z.F. Veselovska. – Knyga plyus, 2023. – 336 p.

17. Peculiarities of providing medical care for traumatic eye injuries in the conditions of an anti-terrorist operation: methodological recommendations/ compiled by: 18. Krasnovyd T.A., Sidak-Petretska O.S., Isko K.D. et al. – Odessa: Pluton, 2014. – 19 p.
18. Ophthalmology in schemes: a textbook for students of higher educational institutions of the IY accreditation level / Ministry of Health, Kharkiv National Medical University; compilers: P.A. Bezditko et al. – Kh.: "Golden Pages", 2008. – 84 p.
19. Glaucoma Terminology and Guidelines. 5th edition. European Glaucoma Society. – 2021. – 170 p.
20. Improving the primary surgical treatment of penetrating corneal wounds: methodological recommendations /compiled by: Bobrova N.F., Shevchyk V.I., Dembovetska G.M. – Kyiv, 2013. – 21 p.
21. The Wills Eye Manual . Office and emergency room d iagnosis and t reatment of e ye d isease /Dr.KallaGervasio,Dr.TravisPeck.– Philadelphia : Wolters Kluwer, 2021. - 426 p .
22 . Image a nalysisand m odeling in o ophthalmology /Edited b y EddieY.K.Ng. - CRC Press, 2017.– 412 p .
2 3 . Handbook of visual optics . Two-Volume Set /Pablo Artal. - CRC Press, 2021.– 832 p .

Information resources .

1. Official Internet representation of the President of Ukraine http://www.president.gov.ua /
2. Verkhovna Rada of Ukraine http://www.rada.gov.ua /
3. Cabinet of Ministers of Ukraine http://www.kmu.gov.ua /
4. Ministry of Education and Science of Ukraine http://www.mon.gov.ua /
5. Ministry of Ecology and Natural Resources of Ukraine / http://www.menr.gov.ua
6. State Emergency Service of Ukraine http://www.dsns.gov.ua /
7. National Security and Defense Council of Ukraine http://www.rnbo.gov.ua /
8. Permanent Mission of Ukraine to the UN http://ukraineun.org/
9. North Atlantic Treaty Organization (NATO) http://www.nato.int /
10. World Health Organization http://www.who.int/en/
11. Centers for disease control and prevention www.cdc.gov