

DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY

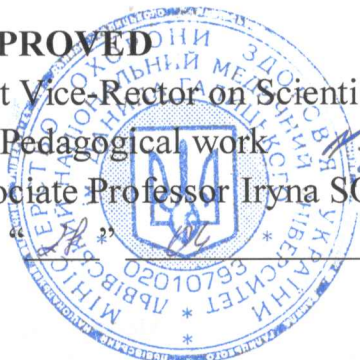
Department of Ophthalmology

APPROVED

First Vice-Rector on Scientific
and Pedagogical work

Associate Professor Iryna SOLONYNKO

2023



DISCIPLINE PROGRAM

OC-36 "OPHTHALMOLOGY"

Second (master's) level of higher education

Field of Knowledge 22 "Healthcare"

Specialty 222 "Medicine"

Faculty, year: Medical, 4th year

Discussed and approved
at the educational-methodical
meeting of the Department of
Ophthalmology Minutes No 8
dated "24" April 2023

Head of Department

prof. Andriy HUDZ

Approved
by the Profile Methodical Board on
Surgical Disciplines
Minutes No 20 dated
"27" April 2023

Head of the profile methodical committee

prof. Victor ANDRYUSHCHENKO

The discipline program “Ophthalmology” was developed and imported at the Department of Ophthalmology of Danylo Halytsky Lviv National Medical University for the 4th year students of Medical Faculty by the Specialty 222 “Medicine”.

Program developers:

Mikhel V.D., PhD in Medical Sciences, Associate Professor, vice- head at the department of Ophthalmology, Danylo Halytsky Lviv National Medical University;

Kuryltsiv N.B., PhD in Medical Sciences, Associate Professor at the department of Ophthalmology, Danylo Halytsky Lviv National Medical University.

Reviewers:

Cymar A.V., PhD in Medical Sciences, Associate Professor at the department of Otorhinolaryngology, Danylo Halytsky Lviv National Medical University.

Chair of the department of Ophthalmology
DSc, Professor Hudz A.S.

EXPLANATORY NOTE

Curriculum for the training of specialists of the second (master's) level in area of knowledge 22 «Health Care» specialties 222 "Medicine" the sixth year of study is implementation of the Law of Ukraine "On Higher Education" from 01.07.2014 № 1556-VII, resolutions of the Cabinet of Ministers of Ukraine from 29.04.2015 № 266 "On approval of the list of branches of knowledge and specialties by which higher education applicants are trained" of the MOH of Ukraine № 1151 від 06.01.2015 "About features of introduction of the list of branches of knowledge and specialties on which preparation of applicants for higher education is carried out" approved by the resolution of the Cabinet of Ministers of Ukraine from 29.04.2015 № 266" letter of the Ministry of Health of Ukraine from 02.10.2018 № 01.6/201/26038 "Concerning the Curricula of Higher Education Institutions" and the order of the Rector Danylo Halytskyi of LNMU" from 02.06.2016 № 1604 "On approval of curricula".

According to the curriculum the study of ophthalmology is carried out in the 7th (VII) semester at the Faculty of Medicine.

Ophthalmology as a discipline:

- A) is based on study of general anatomy, biophysics, histology, pharmacology;
- B) sets fundamentals for skills of application of knowledge in ophthalmology in professional activity;
- C) sets fundamentals for prophylactics of diseases of organs of vision

The educational process is organized according to the credit-modular system in accordance with the requirements of the Bologna process.

The discipline program contains one module comprising three credits, 90 hours (8 hours of lectures / 37 hours of practical classes / 45 hours of individual work). Student learning load is described in ECTS credits - credit credits that students earn when they successfully master the appropriate module (total credits).

Ophthalmology is a clinical discipline that studies the anatomy, physiology and pathology of the visual organ and the auxiliary apparatus of the eye. The importance and necessity of its teaching at the final stage of doctor's training is due to the fact that diseases of the visual organ are in one of the first places among human diseases and account for about 20% of all appeals to medical institutions. Eye diseases lead to early disability or limited career choices, so it is safe to say that an ophthalmologist may be one of the first doctors in health care. Types of educational activities of students according to the curriculum are: - lecture materials; - practical training; - independent work of students (VTS). Practical classes include: study of the discipline "Ophthalmology"; mastering practical skills. In practical classes in the discipline "Ophthalmology" students are recommended to: - perform written tasks (test control to determine the initial level of knowledge, situational tasks for the final control of the level of knowledge of students); - watching educational thematic videos (using diagrams, tables, slides, models, computer presentations); - practical skills (indirect and direct ophthalmoscope, skiascopic rulers, Maklakov tonometer, anomaloscope, 4-point color test, biomicroscope, multifocal lens). The program is based on the integration of the educational process in higher education and provides students with knowledge of basic theoretical and clinical disciplines.

The program of the discipline consists of one module, which includes blocks of 3 content modules. The amount of student workload is described in ECTS credits - credit credits, which are credited to students upon successful completion of the relevant module (credit).

Structure of the of the academic course study	Amount of the hours					Type of control
	All	Class-room lessons				
		Lectures	Practical lessons	Self-assisted lessons	Year of study	
Subjects: "Ophthalmology", content modules - 3 credits	3 credit / 90 hours	8	37	45	4 course, VII semester	Differentiated credit

1. AIM OF THE STUDY FOR THE EDUCATIONAL COURSE

1.1 The purpose of the study of ophthalmology- final goals are defined basing on EPT, training of physician according to a block of theme module (natural – scientific preparation) and is a fundamental for construction of the content of academic course. Description of aims is fulfilled in skills in form of goal tasks (actions). Concrete tasks in form of certain skills (actions), goal tasks, securing achievement of final aim of the discipline are established based on final goals of each module or theme module. Final goals are presented at the beginning of the program and proceed its content, concrete goals proceed a content of a corresponding module.

1.2 The ultimate goals of the discipline:

Applying ethic-deontological principles of protection of sight of people of different age and sex, analyze peculiarities of an organ of vision, interpret mechanisms of development of pathologic processes of an organ of vision.

To determine the etiological and pathogenetic factors of the development of the main diseases of the visual organ.

To determine preliminary diagnosis of the most common eye diseases and injuries.

Determine the tactics of managing patients with basic eye diseases.

Diagnose emergency conditions in ophthalmology and provide emergency medical care.

To plan preventive measures for prevention of epidemic outbreaks of eye diseases, damage to the organ of vision, development of blindness.

1.3 Competencies and learning outcomes.

The formation of which is facilitated by discipline (the relationship with the regulatory content of the training of higher education applicants, formed in terms of learning outcomes in the Higher Education Standard). Competences and learning outcomes facilitated by discipline (involvement with the normative content of the training of higher education applicants, formed in terms of the results of study in the Higher Education Standard).

General competencies

GC1	Ability for abstract thinking, analysis, and synthesis.
GC2	Ability to learn and acquire contemporary knowledge.
GC3	Ability to apply knowledge in practical situations.
GC4	Knowledge and understanding of the subject area and awareness of professional activities.
GC5	Ability to adapt and perform in new situations.
GC6	Ability to make informed decisions.
GC7	Ability to work in a team.
GC8	Interpersonal communication skills.
GC9	Ability to communicate in a foreign language.
GC10	Ability to use information and communication technologies.
GC11	Capacity for searching, processing, and analyzing information from various sources.
GC12	Determination and perseverance in fulfilling tasks and responsibilities.
GC13	Awareness of equal opportunities and gender issues.
GC14	Ability to exercise rights and fulfill duties as a member of society, recognizing the values of a free democratic society and the necessity of its sustainable development, the rule of law, and

	the rights and freedoms of individuals in Ukraine.
GC15	Capability to preserve and enhance moral, cultural, and scientific values and achievements of society based on an understanding of the history and patterns of development in the subject area, its place in the general body of knowledge about nature and society, as well as in the development of society, technology, and technology, and the use of various types and forms of physical activity for active recreation and a healthy lifestyle.

Specialized (professional, subject) competencies

SC1	Ability to gather medical information about patients and analyze clinical data.
SC2	Capability to determine the necessary list of laboratory and instrumental tests and assess their results.
SC3	Ability to establish a preliminary and clinical diagnosis of diseases.
SC4	Capability to determine the necessary work and rest regimen for treatment and disease prevention.
SC5	Ability to define the principles and nature of nutrition in treatment and disease prevention.
SC6	Capability to determine the principles and nature of treatment and disease prevention.
SC7	Ability to diagnose urgent medical conditions.
SC8	Capability to determine tactics and provide emergency medical care.
SC9	Ability to conduct medical evacuation measures.

SC10	Capability to perform medical procedures.
SC11	Ability to conduct sanitary and hygienic and preventive measures.
SC12	Ability to maintain medical documentation, including electronic forms.
SC13	Capability to analyze the activities of a physician, department, healthcare facility, ensure the quality of medical care, and improve the efficiency of medical resource utilization.
SC14	Adherence to ethical principles when working with patients and laboratory animals.
SC15	Adherence to professional and academic integrity, taking responsibility for the accuracy of obtained scientific results.

Specification of competencies according to the NQF descriptors in the form “Competence Matrix ».

Competence Matrix

№	Competence	Knowledge	Skills	Communication	autonomy and responsibility
---	------------	-----------	--------	---------------	-----------------------------

Integral competence

Ability to solve typical and complex specialized tasks and solve practical problems in health care professional work or in a training process that involves research and / or innovation and is characterized by the complexity and uncertainty of conditions and requirements.

GENERAL COMPETENCIES

№	Competence	Knowledge	Skills	Communication	Autonomy and Responsibility
1.	Ability for abstract thinking, analysis, and synthesis	Knowing methods of analysis, synthesis, and further contemporary learning	To be able to analyze information, make informed decisions, and acquire contemporary	Establishing relevant connections to achieve goals	Taking responsibility for acquiring contemporary knowledge in a timely manner.

			knowledge		
2.	The ability to learn and acquire modern knowledge	Knowing the current trends in the industry and analyzing them	Being able to analyze professional information, make informed decisions, and acquire contemporary knowledge	Establishing relevant connections to achieve goals	Taking responsibility for timely acquisition of contemporary knowledge
3.	The ability to apply knowledge in practical situations	Having specialized conceptual knowledge acquired through the learning process	Being able to solve complex problems and issues that arise in professional activities	The ability to effectively formulate a communication strategy in professional activities	Taking responsibility for professional development and having the ability for further professional learning with a high level of autonomy
4.	Knowledge and understanding of the subject area and an understanding of professional activities	Having deep knowledge of the structure of professional activities	Being able to carry out professional activities that require updating and integrating knowledge	The ability to effectively formulate a communication strategy in professional activities	Taking responsibility for professional development and having the ability for further professional learning with a high level of autonomy
5.	Ability to adapt and act in a new situation	Knowing the types and methods of adaptation, principles of action in a new situation	Being able to apply self-regulation techniques, being able to adapt to new life and work situations	Establishing relevant connections to achieve goals	Taking responsibility, timely use of self-regulation methods
6.	The ability to make informed decisions	Knowing communication tactics and strategies, laws, and methods of communicative behavior	Being able to make informed decisions, choose methods and communication strategies to ensure effective teamwork	Using communication strategies and interpersonal interaction skills	Taking responsibility for choosing the method and tactics of communication
7.	The ability to work in a team	Knowing communication tactics and strategies,	Being able to choose methods and communication	Using communication strategies	Taking responsibility for choosing the

		laws, and methods of communicative behavior	strategies to ensure effective teamwork		method and tactics of communication
8.	Ability for interpersonal interaction	Knowing the laws and methods of interpersonal interaction	Being able to choose methods and communication strategies for interpersonal interaction	Using interpersonal interaction skills	Taking responsibility for choosing the method and tactics of communication
9.	Ability to communicate in a foreign language	Having excellent knowledge of the state language	Being able to apply knowledge of the state language both orally and in writing	Using the state language in professional and business communication as well as document preparation	Taking responsibility for proficiently using the state language and developing professional knowledge
10.	The ability to use information and communication technologies	Having excellent knowledge of a foreign language	Having fluent knowledge of a foreign language	Being able to communicate in a foreign language	Taking responsibility for the development of professional knowledge using a foreign language
11.	The ability to search for, process, and analyze information from various sources	Having deep knowledge in the field of information and communication technologies	Being able to use information and communication technologies in a professional field that requires updating and integrating knowledge	Using information and communication technologies	Taking responsibility for the development of professional knowledge
12.	Determination and perseverance in achieving set tasks and responsibilities	Knowing responsibilities and methods of accomplishing assigned tasks	Being able to set goals and tasks, and being persistent and conscientious in carrying out responsibilities	Establishing interpersonal relationships for effective task and responsibility execution	Being responsible for the quality execution of assigned tasks
13.	Awareness of equal opportunities and gender issues	Knowing one's social and civic rights and responsibilities	Forming one's civic consciousness and being able to act in accordance with it	The ability to convey one's civic and social position	Being responsible for one's civic and social position

14.	The ability to exercise one's rights and responsibilities as a member of society, to be aware of the values of a civil (free democratic) society and the necessity of its sustainable development, the supremacy of the law, and the rights and freedoms of individuals and citizens in Ukraine	Knowing the fundamentals of ethics and deontology	Being able to apply ethical and deontological norms and principles in professional activities	The ability to convey one's professional position to patients	Taking responsibility for adhering to ethical and deontological norms and principles in professional activities
15	The ability to preserve and multiply moral, cultural, and scientific values and achievements of society based on an understanding of the history and development patterns of the subject area, its place in the overall system of knowledge about nature and society, and in the development of society, technology, and technologies, using various forms of physical activity for active leisure and a healthy lifestyle	Knowing moral, cultural, and scientific values and achievements of society based on an understanding of the history and development patterns of the subject area	Being able to use the achievements of society, science, and technology, as well as modern technologies, while adhering to moral, cultural, and scientific values	Forming appropriate connections based on communication strategies for effectively achieving goals in the formation of moral-ethical and physical health of society	Taking responsibility for preserving and multiplying moral, historical, cultural, and scientific values

SPECIALIZED (PROFESSIONAL, SUBJECT) COMPETENCIES

1.	The ability to collect medical information about the patient and analyze clinical data	Having specialized knowledge about the human visual system, anatomical and physiological characteristics at different ages. Knowing methodologies and standard protocols for interviews and the collection of hereditary information	Being able to conduct a conversation with the patient based on algorithms and standards. Using specialized techniques to examine the patient. Being able to conduct a comprehensive assessment of a person's health	Effectively formulating a communication strategy when interacting with the patient. Entering information about the patient's health into the appropriate medical documentation	Taking responsibility for the quality collection of obtained information based on interviews, questionnaires, examination, palpation of the visual system, and timely assessment of the patient's visual organ condition, and for taking appropriate measures
2.	The ability to determine the necessary list of laboratory and instrumental investigations and assess their results	Knowing the methodologies for conducting laboratory and instrumental investigations in cases of eye diseases	Being able to analyze the results of laboratory and instrumental investigations and, based on them, evaluate the information regarding the patient's diagnosis	Formulating and conveying conclusions to the patient regarding the necessary list of laboratory and instrumental investigations	Taking responsibility for making decisions regarding the evaluation of the results of laboratory and instrumental investigations
3.	The ability to establish a preliminary and clinical diagnosis of a disease	Knowing the structure of the eye, standard examination methods, algorithms for disease diagnostics, algorithms for key symptoms	Being able to conduct a physical examination of the patient, making informed decisions regarding the identification of the leading clinical symptom or syndrome, being able to establish a preliminary and clinical diagnosis, and prescribing	Maintaining medical documentation based on regulatory documents	Adhering to ethical and legal norms, taking responsibility for making justified decisions and actions regarding the accuracy of the established preliminary and clinical diagnosis

			laboratory and instrumental examinations for the patient using standard techniques		
4.	The ability to determine the necessary work and rest regimen during treatment and prevention of diseases	Having specialized knowledge about the eye, standard examination methods, algorithms for disease diagnostics, algorithms for identifying leading symptoms, algorithms, and standard schemes for determining the work and rest regimen for patients during treatment, based on the preliminary and clinical diagnosis	Being able to determine the necessary work and rest regimen for patients based on the preliminary and clinical diagnosis, by making informed decisions during the treatment of the disease	Formulating and conveying conclusions to the patient regarding the necessary work and rest regimen during the treatment of the disease	Taking responsibility for the justification of prescribing the necessary work and rest regimen for patients during the treatment of the disease
5.	The ability to determine the nature of nutrition during treatment and disease prevention	Having specialized knowledge about the human visual system, anatomical and physiological features, algorithms, and standard schemes for prescribing nutrition for ophthalmic patients	Being able to determine the nature of nutrition for ophthalmic patients based on preliminary and clinical diagnoses	Formulating and conveying conclusions to patients regarding the nutrition of ophthalmic patients based on preliminary and clinical diagnoses	Taking responsibility for the justification of determining the nature of nutrition for patients during the treatment of eye diseases
6.	The ability to determine the principles and nature of treatment and disease prevention	Having specialized knowledge of algorithms and standard treatment schemes for diseases	Being able to determine the principles and nature of disease treatment	Formulating and conveying one's own conclusions to the patient regarding the principles and nature of treatment	Taking responsibility for making decisions regarding the principles and nature of treatment
7.	Ability to diagnose	Having specialized knowledge about	Being able, in conditions of limited	Under any circumstances,	Take responsibility

	emergency conditions	the human visual organ, standard examination methods of the visual organ in conditions of limited information	information, to assess the state of a person's visual organ and determine the primary clinical syndrome (or the cause of the severity of the condition) by using standard methods and making informed decisions	while adhering to relevant ethical and legal norms, make informed decisions regarding the assessment of the severity of the condition, diagnosis, and organization of necessary medical measures depending on the person's condition, and complete the necessary medical documents	for timely and effective diagnosis of emergency conditions in ophthalmology
8.	Ability to determine tactics and provide emergency medical care	to the and Knowledge of the legislative framework for providing emergency medical care to ophthalmological patients, specialized knowledge about urgent conditions of the human visual organ, and principles of providing emergency medical care to ophthalmological patients	Ability to identify urgent conditions in ophthalmology, principles, and tactics of providing emergency medical care, and to carry out organizational and diagnostic measures aimed at saving and preserving the human visual organ	Effectively formulate and communicate the necessity of providing emergency assistance to ophthalmological patients and obtain consent for medical intervention	Take responsibility for accurately determining the urgent condition of the ophthalmological patient, assessing its severity, and providing the appropriate tactics for emergency medical care
9.	Ability to conduct medical evacuation measures	Having specialized knowledge about the human visual organ, algorithms	Being able to provide emergency medical care to ophthalmic patients in urgent	Explaining the necessity and procedure for conducting	Taking responsibility for the timeliness and

		for providing emergency medical care to ophthalmic patients in urgent situations	situations	therapeutic measures of emergency medical care for ophthalmic patients	quality of providing emergency medical care to ophthalmic patients
10.	Ability to perform medical procedures	Having specialized knowledge about the human visual organ, algorithms for performing medical procedures on ophthalmic patients	Being able to perform medical procedures on ophthalmic patients	Rationally formulate and convey to the ophthalmic patient conclusions regarding the necessity of performing medical procedures	Taking responsibility for the quality of performing medical procedures on ophthalmic patients
13.	Ability to conduct sanitary-hygienic and preventive measures	Knowing the system of official document flow in the work of a doctor, including modern computer technologies	Being able to determine the source and location of the required information depending on its type, being able to process information and analyze the information received	Obtaining the necessary information from a designated source and, based on its analysis, forming appropriate conclusions	Taking responsibility for the completeness and quality of the analysis of information and conclusions based on its analysis
16	Ability to maintain medical documentation, including electronic forms	Knowing the procedure for maintaining medical documentation, including electronic forms	Being able to maintain medical documentation, including electronic forms	Effectively maintain medical documentation	Taking responsibility for effective maintenance of medical documentation
18	Ability to conduct an analysis of the physician's, department's, healthcare facility's activities, ensuring the quality of medical care, and improving the efficiency of	Knowing the fundamentals of conducting an analysis of the physician's, department's, healthcare facility's activities, ensuring the quality of medical care, and improving the efficiency of	Being able to assess the analysis of the physician's, department's, healthcare facility's activities, ensuring the quality of medical care, and improving the efficiency of medical resource utilization	Effectively conduct an analysis of the physician's, department's, healthcare facility's activities	Taking responsibility for the activities of the physician, department, healthcare facility

	medical resource utilization	medical resource utilization			
24	Observing ethical principles when working with patients and laboratory animals	Knowing the ethical principles of working with patients and laboratory animals	Adhering to ethical principles when working with patients and laboratory animals	Effectively adhering to ethical principles when working with patients and laboratory animals	Taking responsibility for adhering to ethical principles when working with patients and laboratory animals
25	Observing professional and academic integrity, taking responsibility for the accuracy of obtained scientific results	Knowing the fundamentals of ethics and professional integrity	Being able to identify issues in professional and academic integrity	Adhering to professional and academic integrity, taking responsibility for the accuracy of obtained scientific results	Taking responsibility for adhering to academic and professional integrity

COMPLIANCE OF THE DEFINED LEARNING OUTCOMES WITH COMPETENCIES AS PER THE STANDARD

Learning Outcome	Code of the Program Learning Outcome	Competency Code
To have a thorough understanding of the structure of professional activity. To be able to perform professional activities that require knowledge updating and integration. To take responsibility for professional development and have the ability for further professional learning with a high level of autonomy.	PLO-1	GC1, GC2, GC3, GC4, GC5, GC6, SC1, SC2, SC3
Understanding and knowledge of fundamental and clinical biomedical sciences at a level sufficient to address professional tasks in healthcare.	PLO-2	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Specialized conceptual knowledge that includes scientific achievements in the field of healthcare and serves as the foundation for conducting research, critically analyzing issues in the field of medicine, and related interdisciplinary problems.	PLO-3	GC1, GC2, GC3, GC4, GC5, GC6, SC1, SC2, SC3, SC6, SC7, SC8, SC10

To identify and identify leading clinical symptoms and syndromes; using standard methods, based on patient history, examination, knowledge of the individual, their organs, and systems, to establish a preliminary diagnosis of the disease.	PLO-4	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Take patient complaints, life and medical history, assess psychomotor and physical development, as well as the condition of organs and organ systems. Based on the results of laboratory and instrumental examinations, evaluate information regarding the diagnosis, taking into account the patient's age and gender.	PLO-5	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Establish a final clinical diagnosis by making informed decisions and analyzing subjective and objective data from clinical and additional examinations. Conduct differential diagnosis, adhering to appropriate ethical and legal norms. Work under the supervision of a supervising physician in healthcare settings.	PLO-6	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional, and/or instrumental) for patients with organ and system diseases to perform differential diagnosis.	PLO-7	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Determine the leading clinical syndrome or assess the severity of a patient's condition by making informed decisions and evaluating the individual's condition under any circumstances (within healthcare facilities and beyond, including emergency situations and combat operations, in field conditions, with limited information, and within a limited time frame).	PLO-8	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC6, SC7, SC8, SC10
Determine the nature and principles of treatment (conservative, surgical) for patients with diseases, taking into account the patient's age and gender, both within healthcare facilities and beyond, including during medical evacuation and in field conditions. Base the treatment decisions on the previously established clinical diagnosis while adhering to relevant ethical and legal norms. Make informed decisions following existing algorithms and standard schemes, and if necessary, be able to justify personalized recommendations under the supervision of a supervising physician within a healthcare facility.	PLO-9	GC1, GC2, GC3, GC4, GC5, GC6, GC13, GC14, GC15, SC2, SC3, SC6, SC7, SC8, SC10, SC24
Determine the necessary work, rest, and dietary regimen for the patient based on the preliminary and/or final clinical diagnosis, following appropriate ethical and legal norms, and making informed decisions according to existing algorithms and standards.	PLO-10	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC4, SC5, SC6, SC7, SC8, SC10, SC15
Perform medical manipulations in healthcare facilities, in industrial settings, and at the patient's home based on the preliminary clinical diagnosis and/or the patient's condition,	PLO-17	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC4, SC5, SC6, SC7,

making informed decisions while adhering to relevant ethical and legal norms.		SC8, SC10
Determine the functioning and life activity limitations of an individual and the duration of their incapacity, along with the appropriate documentation, within healthcare facilities based on disease and its course, the individual's professional activities, etc. Maintain medical documentation for patients and specific population groups in accordance with regulatory documents.	PLO-18	GC1, GC2, GC3, GC4, GC5, GC6, GC13, SC2, SC3, SC4, SC5, SC6, SC7, SC8, SC10, SC16
Plan and implement a system of epidemiological and preventive measures to prevent the occurrence and spread of diseases among the population.	PLO-19	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC4, SC5, SC6, SC7, SC9, SC10
Analyze the epidemiological situation and implement measures for both mass and individual, general and local prevention of infectious diseases.	PLO-20	GC1, GC2, GC3, GC4, GC5, GC6, SC2, SC3, SC4, SC5, SC6, SC7, SC9, SC10
Retrieve necessary information from professional literature and databases of other sources, analyze, evaluate, and apply this information adequately.	PLO-21	GC1, GC2, GC9, GC10, GC11
Utilize modern digital technologies, specialized software, and statistical methods for data analysis to address complex healthcare tasks and research work.	PLO-22	GC1, GC2, GC4, GC10, GC11
Effectively communicate in both the state language and English, both orally and in writing, for discussing professional activities, research, and projects.	PLO-27	GC1, GC2, GC4, GC5, GC9, SC25

1

Program Learning Outcomes (PLP)

1. To have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.
2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.
3. Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and interdisciplinary problems related to it.
4. Select and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2).

5. Collect complaints, anamnesis of life and diseases, evaluate the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient.

6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of the health care institution (according to list 2).

7. Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).

8. Determine the main clinical syndrome or what causes the severity of the victim/victim's condition (according to list 3) by making a reasoned decision and assessing the person's condition under any circumstances (in the conditions of a health care facility, outside its borders), including in the conditions of an emergency and hostilities, in field conditions, in conditions of lack of information and limited time.

9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the age of the patient, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution.

10. Determine the necessary mode of work, rest and nutrition on the basis of the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.

11. Determine the approach, plan and tactics of managing physiological pregnancy, physiological childbirth and the postpartum period by making a reasoned decision according to existing algorithms and standard schemes.

12. Determine tactics and provide emergency medical care in emergency situations (according to list 3) in limited time conditions in accordance with existing clinical protocols and standards of treatment.

13. To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions.

14. Form rational medical routes for patients; to organize interaction with colleagues in their own and other institutions, organizations and institutions; to apply tools for the promotion of medical services in the market, based on the analysis of the needs of the population, in the conditions of the functioning of the health care institution, its division, in a competitive environment.

15. Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.

16. To determine the state of functioning and limitations of a person's life activity and the

duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution based on data about the disease and its course, peculiarities of a person's professional activity, etc. Maintain medical documentation regarding the patient and the contingent of the population on the basis of regulatory documents.

17. To plan and implement a system of anti-epidemic and preventive measures regarding the occurrence and spread of diseases among the population.

18. Analyze the epidemiological situation and carry out mass and individual, general and local prevention of infectious diseases.

19. Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

20. Apply modern digital technologies, specialized software, statistical methods of data analysis to solve complex health care problems.

21. Assess the impact of the environment on the state of human health to assess the state of morbidity of the population.

22. To organize the necessary level of individual safety (own and the persons one cares about) in case of occurrence of typical dangerous situations in the individual field of activity.

23. Clearly and unequivocally convey one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists.

24. Manage work processes in the field of health care, which are complex, unpredictable and require new strategic approaches, organize the work and professional development of personnel taking into account the acquired skills of effective teamwork, leadership positions, appropriate quality, accessibility and fairness, ensuring the provision of integrated medical care.

25. Freely communicate in the state language and English, both orally and in writing to discuss professional activities, research and projects.

26. Make effective decisions on health care issues, evaluate the necessary resources, take into account social, economic and ethical consequences.

2. Information volume of the course

THEME MODULE 1. Anatomy and function of the Eye. Diseases of the Eye Adnexa

Concrete goals:

To analyze main periods of development of domestic ophthalmology.

To explain anatomy of the eye.

To explain functions of the eye. To be able to determine visual acuity, darkness adaptation, color vision.

To be able to define stages of examination of a patient, suffering from pathology of the eye, to keep medical records.

To determine refraction and accommodation of an eye.

To give sanitary-hygienic recommendations in case of anomalies of refraction.

To evaluate changes of conditions of eyelids and lacrimal apparatus in norm and in case of pathology.

To analyze peculiarities of clinical course of the orbit disease.

To give first aid in case of acute inflammatory processes of the orbit and adnexa.

Topic 1. Functions of the eye. Diagnostic methods

Basic diagnostic methods. Blindness. The concept of norm and pathology of the organ of vision. Achievements of modern ophthalmology. The subject of ophthalmology and its place among other medical disciplines. An outline of the development of ophthalmology (Helmholtz, Grefe, Elshnig, Donders). History of domestic ophthalmology, its origins in folk medicine of Kievan Rus. The first eye clinics. Founders of national ophthalmology - EV Adamyuk, LG Bell'arminov, LL Girshman, VI Dobrovolsky, AN Maklakov. Further development of domestic ophthalmology (AA Kryukov, SS Golovin, VP Filatov, IJ Merkulov, AI Dashevsky, NO Puchkovskaya, etc.).

Ocular incidence: structure, level, dynamics of conjunctivitis, keratitis, inflammation and dystrophy of the vascular tract and retina, strabismus, progressive myopia, tumors. Frequency, geography, seasonality, timing and causes of eye damage, professional eye pathology. Differences in the structure and level of ocular pathology in children and adults.

The main causes of decreased vision in people of all ages and genders. Questions of regional eye pathology. Blindness. Characteristic of absolute, subject and household, professional blindness. The most common diseases that lead to blindness of people of all ages. The difference between the causes of blindness in children and adults. Role of the Ukrainian Society of the Blind in organizing comprehensive assistance to the blind. Organization of ophthalmic care for adults and children. Characteristics of the medical network: ophthalmology clinics, inter-district offices for the protection of children, consultative polyclinics, eye hospitals, dispensaries, trauma centers. Specialized eye sanatoriums, specialized eye kindergartens, sanatorium eye camps and more. Functions and subordination of these institutions. Schools for the visually impaired and the blind are indications for admission to these schools in terms of severity and field of vision.

Measures to protect the eyesight of children in preschools and schools. Indications and contraindications to work training, etc. The role of teachers, educators, doctors. Investigation of central vision. Visual acuity, unit of its measurement, angle of vision. Value of minimal angle of vision. Principle of constitution of tables for measurement of Visual acuity. Determination of sight keenness according to the tables. Importance of optic system of eye.

Investigation of color vision. Color and its main characteristics. Conditions, required for recognition of colors. Trichromatism of a usual human eye. Dichromatism. Explanation of mistakes, made by dichromat. Diagnostics of color blindness. Polychromatic tables.

Investigation of peripheral vision – visual field. Normal edges of visual field, physiological scotoma. Methods of determination of visual field: control, peripheral, campimetry. Concentric tunneling of vision. Sector-like defects, half loss of visual field of both eyes (hemianopsia), limited defects in visual field (scotoma). Kinds of scotomas (central, peripheral, relative, absolute, negative, positive).

Investigation of twilight vision. Threshold of recognition and threshold of irritation, their instability. Adaptation. Theory of vision duality. Curves of adaptation. Night blindness. Methods of indication of night blindness. Purkinje's phenomenon and method of S.V. Kravkov. Night blindness symptomatic and essential, their relations with general conditions of an organism, professional and everyday conditions.

Fluorescein angiography. Methodology of implementation. Estimation of choroidal, arterial and venous phases.

Topic 2. Refraction and accommodation

Study of refraction. Optic system of eyes, its constitutional components. Unit of refraction measurement – a diopter. Notion of physical refraction of an eye and age dynamics of its development. Objective and subjective methods of determination of clinical refraction. Dependence of clinical refraction on refracted force of optic environments and length of an eye axis. Characteristics of clinical refraction and its kinds: emetropia, ametropia, anisometropia). Age characteristics and share of different kinds of refraction.

Emetropia, its clinical characteristics, spreading, methods of determination.

Hypermetropia (presbyopia). Age dynamics, spreading. Peculiarities of optic correction of hypermetropia.

Myopia (short-sightedness). Characteristics, age dynamics and spreading. Inborn and progressive short-sightedness. Changes in periorbita during progressive short-sightedness. Pathogenesis, classification, impact of unfavorable factors. Principles of medicamental and surgery treatment. Prophylactics. Optimal ocular correction, contact correction, refraction surgery by means of excimer laser.

Astigmatism. Characteristics, spreading, age dynamics. Kinds of astigmatism, methods of determination. Peculiarities of glasses being used for correction of astigmatism. Contact lens.

Accommodation. Convergence and its importance in case of accommodation. Length and volume of accommodation. Changes of accommodation because of age. Spasm and paralysis of accommodation, causes of them. Diagnostics of accommodation spasms and prophylactics of them. Visual tiredness (asthenopia) and methods of treatment. Presbyopia (age, old visions) and its correction depending on initial clinic refraction and age. Hygiene of visual work in children and old age people.

Topic 3. Strabismus

Investigation of binocular sight. Binocular sight and its essence. Understanding of corresponding and non-corresponding image points of retina. Physiological doubling. Conditions of depth perception. Importance of cortex in stereoscopic vision. Scheme of performance of oculomotor muscles. Fixative and fusional eye movements. Development of fusion reflex. Depth estimation, eye measurement. Ways of measuring of binocular sight: fixative eye movements by means of two pencils, experiment with “hole in hand”. Deviation of binocular sight.

The most common changes of oculogyric apparatus. Destruction of depth (binocular) perception. Pseudo and silent strabismus. Concomitant and paralytic strabismus. Principles of cure of concomitant and paralytic strabismus. Prophylactics of strabismus. Nystagmus, causes of appearance, principles of treatment.

Binocular vision research. Binocular vision and its essence. The concept of relevant and inappropriate retinal points. Physiological doubling. Conditions of deep vision. Role of cerebral cortex in stereoscopic vision.

The scheme of work of the eye of the muscular muscles. Fixation and fusion eye movements. Education of fusion reflex. Depth estimation, eyewash. Methods for determining binocular vision: installation movement with two pencils, experiment with a "hole in the palm". Binocular vision impairment.

Changes in oculomotor apparatus that occur most frequently. Disorder of deep (binocular) vision. Imaginary and hidden strabismus. Common and paralytic strabismus. Principles of treatment of friendly and paralytic strabismus. Prevention of strabismus. Nystagmus, causes, principles of treatment. Iridodiagnosis as a method of assessing the constitutional capacity of the body's response to a pathological process.

Iridology as a method of constitutional capabilities of body reaction to a pathologic process.

Topic 4. Diseases of the eyelids, lacrimal system, orbit and conjunctiva

Blepharitis, hordeolum, chalazion, apostasies, eyelid abscess. Injuries of nerve-muscle apparatus of eyelids. Ptosis, lagophthalmos. Innate anomalies (coloboma of eyelids, ankyloblepharon, entropion, ectropion, epicanthic fold, ptosis). Diseases of eyelids, caused by demodicosis (peculiarities of clinical description, diagnostics, treatment and prophylactics).

Tumors of eyelids (benign, cancerous). Indication to surgery, cryolysis, radio-therapy, diathermy and chemotherapy.

Innate anomalies of lacrimal gland. Dacryoadenitis. Etiology, clinics, methods of diagnostics, course, complications. Principles of treatment. Sjogren disease ("dry" eye disease in case of injuries of lacrimal and other excretory glands). Pathogenesis, stages of clinical course, consequences. Methods of diagnostics and therapy. Place of physician in timely diagnostics and complex treatment of Sjogren disease. Tumors of lacrimal gland (adenocarcinoma). Clinics, course, methods of diagnostics, treatment, forecast.

Innate and acquired changes of lacrimal passages. Absence or dislocation of lacrimal points, diminution or obliteration of nasal canals, diverticulum of lacrimal sac, stenosis of nasolacrimal duct. Methods of diagnostics, principles and term of surgery treatment.

Dacryocystitis of newborns. Clinical characteristics, causes and time of appearance. Methods of diagnostics and treatment, possible complications.

Dacryocystitis inveterate. Clinics, causes, course, complications. Methods of surgery treatment. Prophylactics.

Dacryocystitis acute (abscess of lacrimal sac). Clinics, course, consequences. Principles of treatment and prophylactics.

Professional choice, labor and military expertise in case of pathology of lacrimal glands.

Inflammatory diseases of eye socket: osteoperiostitis, abscess of eye socket, thrombosis of cavernous sinus, connected with diseases of dento-maxilla system (periodontitis acute and inveterate, root granuloma, osteomyelitis of maxilla, abscess and apostasies of maxillofacial area and neck, furuncles or carbuncles of face, erysipelas of face).

Ways of infection spreading into eye socket (by venous and lymphatic vessels, hematogenous - metastatic way). General symptomatic, particular for inflammatory process in eye socket.

Methods of diagnostics of inflammatory diseases of eye socket, clinics and course.

Tumors of eye socket. Benign tumors (cystis, dermoid cyst, angioma, osteoma). Cancerous tumors (sarcoma, carcinoma). Application of X-ray study, computer tomography, magnetic resonance imaging, venography, carotid angiography, thermography in diagnostics of tumors of eye socket. Peculiarities of clinical course. Methods of treatment.

Conjunctivitis. Acute conjunctivitis, complaints, view of conjunctivitis, conjunctivitis injection of eye bulb and its difference from pericorneal one. Etiology. Methods of treatment. Prophylactics of spreading of conjunctivitis in children institutions. Epidemic conjunctivitis, caused by bacillus Kochi-Wicks. Measures of mass prophylactics, sanitary-hygienic measures. Peculiarities of diagnostics of acute conjunctivitis (diplococcus, pneumococcal, diphtheria) and treatment of them.

Gonoblenorrhoe of newborns and adults. Prophylactics of it and treatment. Consequences. Treatment general and local one.

Virus conjunctivitis (herpes virus, adenovirus). Peculiarities of diagnostics, treatment and prophylactics.

Inveterate conjunctivitis. Necessity to find out and liquidate chronically active factors. Inveterate conjunctivitis as a professional pathology and measures of its prophylactics in industry and agriculture. Trachoma. Definition. Etiology. Pathogenesis. Four stages of trachoma development. Consequences. Complications. Paratrachoma. Etiology. Pathogenesis, peculiarities of diagnostics and

treatment. Differential diagnostics of folliculosis and follicular conjunctivitis. Treatment: medicamental, surgery, general. Treatment of complications. Spreading and epidemiology of trachoma and paratrachoma. Fight against trachoma in Ukraine.

Dystrophic changes of conjunctiva (pterygium, pinguecula). Indication to surgery.

Tumors of conjunctiva. Benign tumors (dermoid, papilloma), cancerous (melanoma, cancer). Indication to radio-therapy, diathermocoagulation, surgery treatment.

THEME MODULE 2. Inflammatory and dystrophic diseases of the eye. Glaucoma

Concrete goals:

To be able to inspect conditions of injection of an eye bulb

To interpret data, got from side lighting of cornea, front chamber of an eye in norm and in case of pathology

To interpret data of biomicroscopy of cornea, front chamber, iris, crystalline lens, vitreous body, in norm and in case of pathology

To be able to give first aid in case of acute keratitis, cornea ulcer, iridocyclitis, uveitis.

To be able to determine diagnosis of cataract and substantiate treatment.

To be able to interpret conditions of intraocular pressure.

To be able to determine diagnosis of glaucoma and order of treatment.

Topic 5. Disease of the cornea, sclera and uveal tract

Keratitis of exogenous origin. Infectious keratitis of bacterial origin. Cornea ulcer. Conditions of appearance of ulcer process in cornea. Serpiginous ulcer of cornea. Clinics, course, consequences. Role of chronic dacryocystitis. Treatment. Prophylactics: dacryocystorhinostomy, protection of workers' eyes.

Keratitis of virus etiology. Adenovirus conjunctivitis. Clinics. Course. General and local treatment. Epidemiology. Prophylactics. Keratitis, caused by illness of conjunctiva, eyelids and meibomian (tarsal) glands. Treatment. Prophylactics. Catarrhal keratitis during acute conjunctivitis. Prophylactics, treatment.

Keratitis of endogenous origin. Infectious keratitis. Keratitis in case of innate syphilis (parenchymatous). Clinics. Rhythmicity of course. Consequences. Causes of appearance. Symptoms of innate syphilis. Serological indicators. Treatment specific, general-consolidating and local symptomatic.

Phthisic keratitis. Hematogenic phthisic keratitis in case of phthisic metastatic iridocyclitis. Pathogenesis. Clinics. General treatment: specific complex, desensitizing, general-consolidating, local treatment: symptomatic and specific.

Phthisic-allergic keratitis. Clinics and course. General conditions of a child. General treatment: specific, desensitizing and general-consolidating. Local treatment: specific and symptomatic. Prophylactics of phthisic affects.

Neurogenic keratitis. Neuroparalytic keratitis in case of injury of ternate nerve. Peculiarities of clinics – loss of sensitivity, non-responsiveness of an eye. Herpetic keratitis. Clinics of different forms. Course. Consequences. Theory of pathogenesis. Treatment. Keratitis in case of herpes zoster. Clinics of affects of cornea, skin and general conditions. General and local treatment.

Fungal affects of cornea. Clinics, course, peculiarities of diagnostics. Specific methods of treatment.

Keratitis of vitamin deficiency. Affects of cornea in case of vitamin deficiency A. Prexerosis. Xerosis of cornea. Keratomalacia. Clinics. Course. Treatment. Prophylactics.

Corneal dystrophy. Primary dystrophies: Grenow's degeneration, Spotted Ferro dystrophy, Dimmer's lumbar dystrophy, Mesmann's epithelial dystrophy, Schneider's corneal degeneration, Francois family speckled dystrophy. Secondary corneal dystrophies. Causes, features of the clinic and

treatment.

Etiology, pathogenesis of diseases of the sclera (scleritis, episcleritis, ectasia, scapula scleral, scleromalacia). Diagnosis and modern methods of treatment.

Neoplasms of sclera, diagnostics, treatment.

Incidence of vascular tract disease in general ocular pathology. Severe consequences of diseases of the vascular tract as a cause of vision and blindness. Structure of diseases of the vascular tract (inflammatory, dystrophic processes, neoplasms, congenital anomalies).

Inflammation of uveal tract (uveitis). The most common reasons for appearing of uveitis in people of different age. Pathogenic mechanisms of uveitis development: infectious-metastatic, toxic-allergic. Classification of uveitis depending of course, localization, clinic-morphological description, etiology, immune status. Main morphologic, functional characteristics and mechanisms of uveitis (choroiditis, panuveitis). Age peculiarities of course and consequences of uveitis. Differentiated diagnosis of disease of uveal tract, depending on their etiology by clinical, laboratory (necessity of additional methods of investigation: X-ray study, electro-physiological and immunologic) picture (collagenous, virus, phthisic, syphilis, toxoplasmosis, focal etc.). Organization, principles, methods of general and local treatment of front and back uveitis, depending on etiology and character of the process. Consequences. Prophylactics.

Dystrophic diseases of iris and ciliary body. Causes of appearance. Forms (chronic dysfunction of ciliary body, Fuchs syndrome). Differentiated diagnosis of a anterior uveitis. Clinics, course, principles of treatment.

Anomalies of development of vascular membrane (coloboma of iris, coloboma of ciliary body, coloboma of choroid, aniridia, polycoria, chorioidermy, albinism, residual pupil membrane).

Neoplasms of the vascular sheath. Benign (cysts, nevuses, neurofibromas, neurinomas, leiomyomas). Features of the clinic, principles of treatment. Malignant tumors (melanoma, melanosaarcoma). Diagnosis. Indications for surgical and laser treatment.

Topic 6. Diseases of the lens and vitreous body

A cataract is a cloudy area in the lens of the eye that leads to a decrease in vision. Cataracts often develop slowly and can affect one or both eyes. Symptoms may include faded colors, blurry or double vision, halos around light, trouble with bright lights, and trouble seeing at night. This may result in trouble driving, reading, or recognizing faces. Poor vision caused by cataracts may also result in an increased risk of falling and depression. Cataracts cause half of all cases of blindness and 33% of visual impairment worldwide.

Cataracts are most commonly due to aging but may also occur due to trauma or radiation exposure, be present from birth, or occur following eye surgery for other problems. Risk factors include diabetes, longstanding use of corticosteroid medication, smoking tobacco, prolonged exposure to sunlight, and alcohol. The underlying mechanism involves accumulation of clumps of protein or yellow-brown pigment in the lens that reduces transmission of light to the retina at the back of the eye. Diagnosis is by an eye examination.

Prevention includes wearing sunglasses and a wide brimmed hat, eating leafy vegetables and fruits, and avoiding smoking. Early on the symptoms may be improved with glasses. If this does not help, surgery to remove the cloudy lens and replace it with an artificial lens is the only effective treatment. The standard cataract surgical procedure is performed in a hospital or in an outpatient surgery center. There is no overnight stay at the facility. The most common form of cataract surgery today involves a process called phacoemulsification. After numbing the eye with drops or an injection, your surgeon, with the use of an operating microscope, will make a very small incision in the surface of the eye in or near the cornea. A thin ultrasound probe, which is often confused with a laser by patients, is inserted into the eye and uses high-ultrasonic vibrations to break up (phacoemulsify) the clouded

lens. These tiny fragmented pieces are then suctioned out of the eye using the same ultrasound probe. Once the cataract is removed, an artificial lens is placed into the thin capsular bag that the cataract previously occupied. This lens is essential to help your eye focus after surgery.

Aphakia is the absence of the lens of the eye, due to surgical removal, such as in cataract surgery, a perforating wound or ulcer, or congenital anomaly. It causes a loss of accommodation, high degree of farsightedness (hyperopia), and a deep anterior chamber. Complications include detachment of the vitreous or retina, and glaucoma. Babies are rarely born with aphakia. Occurrence most often results from surgery to remove congenital cataract. Congenital cataracts usually develop as a result of infection of the fetus or genetic reasons. It is often difficult to identify the exact cause of these cataracts, especially if only one eye is affected. Ectopia lentis is a displacement or malposition of the eye's crystalline lens from its normal location. A partial dislocation of a lens is termed lens subluxation or subluxated lens; a complete dislocation of a lens is termed lens luxation or luxated lens.

Microspherophakia is a rare congenital autosomal recessive condition where the lens of the eye is smaller than normal and spherically shaped. This condition may be associated with a number of disorders including Peter's anomaly, Marfan syndrome, and Weill–Marchesani syndrome. The spherical shape is caused by an underdeveloped zonule of Zinn, which doesn't exert enough force on the lens to make it form the usual oval shape. It is a result of a homozygous mutation to the LTBP2 gene.

The vitreous body is a transparent, gelatinous substance that is present in the space between the lens and the retina, providing structural stability and maintaining the shape of the eye. Some conditions that can affect the vitreous body are posterior vitreous detachment, vitreous hemorrhage, synchysis scintillans, asteroid hyalosis, and persistent fetal vasculature. The conditions can be asymptomatic or present with floaters in the field of vision, photopsia, and decreased visual acuity. Funduscopy and slit-lamp microscopy are commonly used in the diagnosis of these diseases. Treatment methods depend on the condition and severity, but may include observation, vision correction, and surgery.

Topic 7. Glaucoma

Definition and main symptoms of glaucoma. Classification. Impact of conditions of cardiovascular and nervous systems on appearance and course of glaucoma. Open-angle and close-angle glaucoma (diagnostics and clinic course). Acute angle closure glaucoma. Complaints. Local and general symptoms. Course. Consequences of treated and non-treated acute attack. Differential diagnostics with acute iritis. Treatment: conservative general and local. Indication and time of surgery. Differential diagnostics of glaucoma with aging cataract. Course. Treatment: miotics regime, indication to surgery and laser cure, principles of surgery. Regimen of a patient suffering from glaucoma. Clinical examination.

Congenital glaucoma (etiology, pathogenesis), peculiarities of clinics and treatment.

Secondary glaucoma, clinical forms, principles of diagnostics and treatment.

Blindness, caused by glaucoma. Prophylactics, methods of early diagnostics of glaucoma. Active determination of people, suffering from glaucoma. Clinical examination of patients, suffering from glaucoma.

Topic 8. Diseases of the retina and optic nerve

A retinal tear happens when there is a tear or hole in the retina. This typically occurs when the vitreous, which is a jelly-like substance in the eye, attaches to the retina and pulls hard enough to tear it. This can happen when the vitreous detaches as part of the aging process, or it can result from trauma. Retinal tears can cause blurry vision, the sudden onset of floaters, or flashes of light. It is important for people to receive treatment for a retinal tear, as it may result in retinal detachment. This is a more serious condition that affects vision.

Retinal detachment occurs when a buildup of fluid, which usually enters through a retinal tear, causes the retina to detach from the choroid, which is the eye layer that provides it with oxygen and nutrients. Retinal detachment is a medical emergency that, without treatment, may lead to permanent vision loss.

Retinopathy results from damage to the blood vessels at the back of the eye, which causes fluid to leak. This accumulation of fluid can affect the retina and result in changes to vision. Conditions that can cause retinopathy include diabetes, hypertension, and cancer.

Diabetic retinopathy is a common complication of diabetes, with evidence suggesting that it is a leading cause of blindness among adults in the United States.

Epiretinal membranes (ERMs), also called macular puckers or cellophane maculopathy, make up a thin layer that forms on the retina's inner surface. It is usually scar tissue from a medical condition or injury. ERMs often do not cause symptoms, except when they affect the macula or the center of the retina, which is important in perceiving visual details and features. A person may notice distortion of their central vision.

Similar to retinal tears, macular holes are small breaks in the macula that occur due to an unusual pulling between the vitreous and the retina.

Aging is the most common cause of macular holes. Eye injuries may also result in macular holes.

Because macular degeneration is more common among older adults, eye doctors usually call it age-related macular degeneration (AMD). With this condition, the macula deteriorates and causes distorted central vision, which may worsen over time and cause permanent vision loss. One 2021 study suggests that macular degeneration is the most common retinal disorder in the U.S.

Retinitis refers to the inflammation of the retina. It usually results from viruses and bacteria. For example, Lyme disease, syphilis, and Dengue fever may cause retinitis.

Autoimmune conditions, such as Behçet's disease and lupus, may also cause this condition.

Retinitis pigmentosa is a rare genetic degenerative condition that causes a breakdown and loss of cells in the retina. This can cause a progressive loss of vision.

Retinoblastoma, which is a cancer of the retina, is the most common type of eye cancer in infants and young children. According to the American Cancer Society, around 200–300 children in the U.S. receive a diagnosis of the condition every year.

A common symptom is the lack of red reflex in the pupil when the child is having a photo taken.

Macular edema is a condition that occurs due to fluids building up in the macula, causing it to swell.

Several conditions can cause macular edema, including AMD, diabetes, and retinal vein occlusion.

Optic nerve atrophies. Anomalies of development of optic disk (coloboma, myelin fibers, pseudoneuritis).

Dystrophy of retina in the area of macula (genetical, aging). Retina pigmental degeneration.

Congenital pathology of vitreous body (primary hyperplasia, remnants of hyaloid artery).
Diagnostics, treatment. Acquired pathology of vitreous body (extravasation, destruction, foreign bodies). Diagnostics, modern methods of treatment.

Topic 9. Pathology of the visual system due to systemic disorders

Changes in the eye in cardiovascular diseases (hypertension and hypotonic disease, atherosclerosis).

Change of the organ of vision at diseases of blood (leukemias, malignant anemia), toxicosis of pregnant women, diseases of kidneys, at patients with AIDS.

Changes in vision during endocrine disease (diabetes, thyroid disease, pituitary).

Medical examination of eye diseases. Resolving the issue of temporary disability, time, and

persistent disability in connection with the profession. Definition of disability group. Employment of persons with severely impaired visual impairment. Ukrainian Society of the Blind (USOB). Simulation, agration, dissimulation of visual functions. Subjective and objective methods for detecting them.

Requirements placed on the body of view during selection in the Ukrainian Army. List of diseases that limit fitness and determine unfitness for military service. Military medical examination. Commissions, their composition, functions. Methods for finding out how to simulate and dissimulate visual impairments.

Organization of eye care in Ukraine.

Regional and district optometrists. Ophthalmology offices of district polyclinics and medical units, medical and preventive work. Eye hospitals.

THEME MODULE 3. Injuries of the eye. Acute vision loss

Concrete goals:

To be able to give first aid in case of:

a) foreign body of conjunctiva,

b) foreign body of cornea,

To be able to give first aid in case of:

chemical, thermal burn of an eye, penetrating wound,

to explain changes from the side of retina and optic nerve in case of acute loss of vision functions,

to be able to interpret changes on an eye in case of systemic disease of a person (diabetes, atherosclerosis, hypertensive disease).

Topic 10. INJURIES OF THE EYE AND IT'S ADNEXA

Classification of traumas of an eye. Blunt injury of the eye.

Blunt injury of eyelids. Extravasations under skin of eyelids, their sources. Pneumoderma. Blunt injury of an eye: injuries of cornea, sclera, iris, subconjunctival breaks of sclera, injuries of ciliary body, extravasations into vitreum, destructions of lens (traumatic cataract), retinal shock, breaks and separation of retina, injuries of an optic nerve. Symptoms and methods of diagnostics. Treatment of consequences of blunt injuries of an eye bulb ad supplementary eye apparatus.

Foreign bodies of conjunctiva and cornea. Methods of detection, release.

Penetrating wounds of an eye bulb, absolute and relative peculiarities of penetrating wounds of an eye. Principles of special aid, complications. Clinical examination.

Burns of an eye and its appendages. Symptoms and clinical course of burns of eyelids, conjunctive, cornea by acid, alkaline and thermal substances. Burns by radial energy (ultraviolet, infrared, X-ray, ultrasonic irradiation). First aid. Treatment pathogenic, symptomatic, medications, surgery. Complications and modern methods of cure.

Professional injuries of an organ of vision. Traumatism of eyes in industry, its causes, character, preventive measures. Peculiarities of agricultural traumatism of eyes. Organization of self and mutual help and transfer to a medical specialist. Traumas of eyes in chemical industry. Causes, preventive methods.

Professional diseases of eyes. Affects of mechanical dust on eyelids, conjunctive, cornea. Consequences of constant affect of chemically active substances on eyes and in case of general intoxication. Professional diseases of eyes because of constant affect of radio energy. Principles of organization of measures preventive eye traumatism: sanitary-hygienic, individual protection.

Topic 11. Emergencies in ophthalmology

Acute central retinal artery and vein occlusion. Clinic, diagnosis, treatment. Emergency aid. Forecast, consequences. Embolism of the central retinal artery, features of clinical course, diagnosis, treatment, emergency care, consequences.

Retinal detachment. Etiology, pathogenesis, features of the ophthalmic picture. Timing and methods of surgery. Use of modern methods of treatment. The role of photo- and laser-coagulation in the prevention and treatment of retinal detachment. Effects.

Formation of the retina. Features of clinical course (retinoblastoma), ophthalmoscopic picture. Modern methods of diagnosis and treatment.

Orbital cellulitis is an infection of the soft tissues of the eye socket behind the orbital septum, a thin tissue which divides the eyelid from the eye socket. Infection isolated anterior to the orbital septum is considered to be preseptal cellulitis. Orbital cellulitis most commonly refers to an acute spread of infection into the eye socket from either extension from periorbital structures (most commonly the adjacent ethmoid or frontal sinuses (90%), skin, dacryocystitis, dental infection, intracranial infection), exogenous causes (trauma, foreign bodies, post-surgical), intraorbital infection (endophthalmitis, dacryoadenitis), or from spread through the blood (bacteremia with septic emboli).

Topic 12. Ocular tumors

Neoplasm of the orbit. Benign tumors (cysts, dermoid cysts, angiomas, osteomas). Malignant tumors (sarcoma, carcinoma).

Use of radiography, computed tomography, magnetic resonance imaging, venography, carotid angiography, thermography in the diagnosis of orbital tumors. Features of the clinical course.

Methods of treatment. Neoplasms of the eyelids (benign, malignant). Indications for surgical treatment, cryodestruction, radiation therapy, diathermocoagulation and chemotherapy. Congenital anomalies of the lacrimal gland. Neoplasm of the lacrimal gland (adenocarcinoma). Clinic, course, methods of diagnosis, treatment, prognosis. Neoplasms of the vascular membrane. Neoplasms of the vascular membrane. Benign (cysts, nevi, neurofibromas, neurinomas, leiomyomas). Features of the clinic, principles of treatment. Malignant tumors (melanoma, melanosa, melanosa). Diagnosis. Indications for surgical and laser treatment. Retinal neoplasms. Features of the clinical course (retinoblastoma), ophthalmoscopic picture. Modern methods of diagnosis and treatment.

3. Structure of the discipline

Structure of the of the academic course study	Amount of the hours				SPS
	All	Class-room lessons		Self-assisted lessons	
		Lectures	Practical lessons		
	90	8	37	45	10
Credits ECTS	3				
Theme module 1	30	2	12	16	4
Theme module 2	41	4	15	22	4
Theme module 3	17	2	8	7	4
Differentiated credit			2		

4. List of lectures

№	Topic	Hours
1	Diseases of the eyelids, lacrimal system and orbit. "Red Eye" syndrome. Inflammatory diseases of the choroid and retina. Clinical picture, diagnosis, treatment, prophylaxis	2
2	Gradual vision loss. Cataract. Glaucoma. Presbyopia. Age related macular degeneration. Clinical picture, diagnosis, treatment, prophylaxis	2
3	Trauma of the eye and it's adnexa. Clinical picture, diagnosis, first aid, prophylaxis	2
4	Emergencies in ophthalmology. First aid, treatment, prophylaxis. Ocular tumors. Clinical picture, diagnosis, treatment, prophylaxis	2
	Total	8

5. List of practical classes

Theme module 1. Anatomy and function of the eye. Diseases of the eye adnexa		
№	Topic	Hours
1	Visual system functions	3
2	Refraction and accommodation	3
3	Strabismus	3
4	Diseases of the eyelids, lacrimal system, orbit and conjunctiva	3
Theme module 2. Inflammatory and dystrophic diseases of the eye. Glaucoma		
5	Diseases of the cornea, sclera and uveal tract	3
6	Diseases of the lens and vitreous body	3
7	Glaucoma	3
8	Diseases of the retina and optic nerve	3
9	Pathology of the visual system due to systemic disorders	3
Theme module 3. Trauma of the eye and it's adnexa. Acute vision loss		
10	Trauma of the eye and it's adnexa	3
11	Emergencies in ophthalmology	3
12	Ocular tumors	2
	Differentiated credit	2
	Total	37

Note: When organizing the educational process, it is necessary to provide at least 25% of practical classes in the clinic. The number of students in the group should not exceed 4-5 people.

6. List of self-work topics

№	Topic	Hours	Forms of assessment
Theme module 1. Anatomy and function of the eye. Diseases of the eye adnexa			
1	History of ophthalmology in XVII-XX centuries	2	

2	Topographical anatomy of organ of vision	2	Current control during practical sessions
3	Dry eye syndrome	2	
4	Surgical treatment of the lacrimal pathways	2	
5	Refractive surgery	2	
6	Amblyopia. Methods of treatment	2	
7	Strabismus surgery	2	
8	Correction of refractive errors	2	
Theme module 2. Inflammatory and dystrophic diseases of the eye. Glaucoma			
9	Corneal dystrophies and degenerations. Developmental anomalies of the cornea	2	Current control during practical sessions
10	Surgical treatment of corneal pathology	2	
11	Funduscopy signs of glaucoma. Biomicro-ophthalmoscopy of the ONH. OCT in glaucoma	2	
12	Methods of early glaucoma diagnostic	2	
13	Surgical treatment of glaucoma	2	
14	Surgical treatment of cataract	2	
15	Classification, clinical picture and treatment of uveitis	2	
16	AMD, clinical picture, prevention	2	
17	AIDS and its ophthalmological complications	2	
18	Retinopathy of prematurity. Classification, clinical picture	2	
19	Ophthalmological signs in hematological diseases (anemia, hematological malignancies, thrombocytopenic purpura). Ophthalmic pathology in infectious diseases	2	
Theme module 3. Trauma of the eye and it's adnexa. Acute vision loss			
20	Etiopathology, clinical picture and treatment of ocular burns	2	Current control during practical sessions
21	Surgical treatment of retinal detachment	2	
22	Acute closure angle glaucoma	2	
23	Tumors of the eye adnexa	1	
	Total	45	

7. Individual tasks (medical history)

A form of organization of study in order to deepen, summarize and consolidate the knowledge that students receive in the learning process, as well as the application of this knowledge in practice, that is, an individual research task.

All students are supervised by a patient and write a medical history that is protected in a busy class.

8. Learning methods

Practical training in the organization is clinical, aimed at controlling the assimilation of theoretical material and the formation of practical skills, as well as the ability to analyze and apply the acquired knowledge to solve practical problems. Practical classes are mainly held in the children's wards of the clinical bases of the department.

Each class begins with a test control to assess the baseline and determine the students' readiness for the class. The teacher defines the purpose of the class and creates a positive cognitive motivation; answers students' questions raised during the VTS on the topic of the lesson.

The main stage of the lesson is the practical work of the student at the bedside. Teachers and students traverse patients. Students examine sick children, collect anamnesis, examine them, perform diagnostic procedures, and the like. Control of the main stage of the class is carried out by assessing the student's practical skills, ability to solve typical situational tasks. The teacher discusses and gives explanations,

emphasizes the peculiarities of the disease course in a particular child, aims for a more rational conduct of a particular survey method, etc.

In the final stage of the class, in order to assess the student's assimilation of the topic, he is asked to answer situational tasks. The teacher summarizes the lesson, gives students assignments for independent work, points to the nodal questions of the next topic and offers a list of recommended literature for self-study.

The following training technologies, methods of transfer and assimilation of knowledge, skills and skills are used during the course development: lecture, imitation technologies: clinical practical training, role-playing games, case studies, multimedia presentations, educational video materials

9. Control methods

The methods and forms of control and the assessment system are carried out in accordance with the requirements of the discipline program and instructions on the system of evaluation of students' educational activity under the European Credit Transfer System of the educational process approved by the Ministry of Health of Ukraine (Letter of the Ministry of Health of Ukraine № 08.01-47 / 10395 dated 15.04.2014).

When assessing students' knowledge, preference is given to standardized methods of control: testing (written), structured writing, standardized methods of performing practical skills control, working with standard medical records.

Evaluation of current educational activities. During assessment of mastering of each topic for the current educational activity of the student grades on a 4-point (traditional) scale are given, taking into account the approved evaluation criteria for the respective discipline. This takes into account all types of work provided by the curriculum. The student must receive a grade on each topic. Forms of assessment of current learning activities should be standardized and include control of theoretical and practical training.

Methodology for carrying out control measures Continuous control is carried out at each practical session according to the specific objectives for each topic. Traditional grades are displayed in the student's performance log during the practical classes. Practical classes during the study of Pediatrics module are structured and provide a comprehensive assessment of all types of educational activities (study tasks) that students perform during the practical training:

Student answers 10 tests (tests on the subject of the lesson, format A). The correct answer is 10-9 tests = 5 points; 8-7 points = 4 points; 6-5 tests = 3 points; 4 or less tests = 0 points. Answers standard questions, knowledge of which is necessary to understand the current topic. Demonstrates the knowledge and skills of practical skills in accordance with the topic of the practical lesson

10.Current control is carried out during the training sessions and is aimed at checking students' learning of the learning material.

Forms of current control:

Test tasks

Assessment of practical skills

Typical situational tasks

Evaluation of current educational activities.

During the evaluation of mastering each topic for the current activities of the student is given a rating on a 4-point (national) scale. All types of work required by the discipline program are taken into account. The student must receive a grade on each topic to further convert the grades into scores on a multi-scale (200-point) scale.

Evaluation criteria for current learning activities.

Excellent ("5") - student correctly answered 90-100% of A-format tests (from the "Step-2" database).

Correctly, clearly, logically answers all standardized questions of the current topic.

Closely binds theory to practice and demonstrates correct implementation of practical skills. Freely reads the results of analyzes, has methods of examination of the patient. Conducts differential diagnosis.

Solves situational problems of increased complexity, is able to generalize material.

Good ("4") - student correctly answered 70-89% of A-format tests (from the "Step-2" database).

Correctly and essentially answers all standardized questions of the current topic. Demonstrates the implementation (knowledge) of practical skills. Correctly uses theoretical knowledge to solve practical problems, differential diagnosis.

Is able to solve light and medium complexity situational problems. Possesses the necessary practical skills and techniques of their implementation in the amount that exceeds the required minimum.

Satisfactory ("3") - student correctly answered 50-69% of tests of format A (from the database "Step-2").

Incomplete, with additional questions, answers all standardized questions of the current topic. Can not independently build a clear, logical answer. Makes mistakes when answering and demonstrating practical skills. Solves only the lightest situational problems. Possesses only a mandatory minimum of research methods.

Poor ("2") - Student correctly answered 50% of A.

Does not know the material of the current topic, can not construct a logical answer, does not answer additional questions, does not understand the content of the material. He makes significant, gross mistakes when answering and demonstrating practical skills.

Assessment of students' independent work in preparation for the classroom practical exercises is carried out during the ongoing control of the topic at the corresponding classroom session.

11. Forms of final control of learning success.

Form of final control – differentiated credit.

Control methods are standardized and include control of theoretical and practical training.

The semester final control students are allowed:

who have completed all kinds of work, tasks, stipulated by the curriculum for the semester in accordance with the discipline;

attended all classes provided by the curriculum;

wrote and submitted a medical history;

have scored at least a minimum score for their current success.

For students who have missed classes, it is permitted, with the permission of the Dean, to complete their academic debt within a specified term within the semester.

The differentiated is taken after completing the study of the discipline (at the last lesson). The differentiated credit is given by the teachers who conducted practical and other classes in the training group. Students are credited if the grade point average for their current semester performance is at least 3 (72 points on a 200-point scale).

The entry is recorded in the student's record book and the differentiated credit record.

The scheme of calculation and distribution of points received by students:

For disciplines, the form of final control is the exam:

The maximum number of points that a student can earn for his / her current academic activity in the study of the discipline is 120 points.

The minimum number of points that a student must earn for his / her current academic activity to enroll in the discipline is 72 points.

For convenience, a 200-point conversion chart is provided.

Recalculation of the average score for current activity in a multi-scale scale for disciplines that end with a credit

4 ball scale	200 ball scale
5	120
4,95	119
4,91	118
4,87	117
4,83	116
4,79	115
4,75	114
4,7	113
4,66	112
4,62	111
4,58	110
4,54	109
4,5	108

4 ball scale	200 ball scale
4,45	107
4,41	106
4,37	105
4,33	104
4,29	103
4,25	102
4,2	101
4,16	100
4,12	99
4,08	98
4,04	97
3,99	96
3,95	95

4 ball scale	200 ball scale
3,91	94
3,87	93
3,83	92
3,79	91
3,74	90
3,7	89
3,66	88
3,62	87
3,58	86
3,54	85
3,49	84
3,45	83
3,41	82

4 ball scale	200 ball scale
3,37	81
3,33	80
3,29	79
3,25	78
3,2	77
3,16	76
3,12	75
3,08	74
3,04	73
3	72
Less than 3	Not enough

The points from the course are independently converted to the ECTS and 4-point scale.

ECTS points are not converted to the 4-point scale and vice versa.

The points of students studying in one specialty, taking into account the number of points earned from the discipline, are ranked on the ECTS scale as follows:

Rating ECTS	Statistical indicator
A	Top 10% of students
B	The next 25% are students
C	The next 30% are students
D	The next 25% are students
E	The next 10% are students

Ranking for grading “A”, “B”, “C”, “D”, “E” is made for students of this course who study in one specialty and have successfully completed the study of the discipline. Students who have received an FX, F (“2”) grade are not included in the ranking student list. Students with an FX score automatically receive an “E” grade upon transfer.

Discipline points for students who have successfully completed the program are converted to the traditional 4-point scale by the absolute criteria given in the table below:

Discipline points	Traditional 4-point scale
-------------------	---------------------------

From 170 to 200 points	5
From 140 to 169 points	4
From 139 the min points students need to get for passing	3
Below the minimum score, to be scored by the student	2

List of questions to the differentiated credit

Module 1

The visual analyzer, its value in the knowledge of the outside world.

History of ophthalmology. History of Ukrainian ophthalmology school. Initiators of ophthalmological schools.

Blindness. Role of associations in prevention of blindness and medical help for patients. Organization of ophthalmological medical help on different levels.

Prevention of Blindness. Aspects of Vision Loss. Ranges of Vision Loss. Ranges of Visual Acuity Loss. Ranges of Visual Field Loss

Formation of visual image. Theory of vision. Visual analyzer and its role.

Cornea. Anatomy. Blood supply. Properties. Innervation. Functions.

Iris. Anatomy. Blood supply. Properties. Innervation. Functions.

Ciliary body. Anatomy. Blood supply. Properties. Innervation. Functions.

Muscles of iris and ciliary body.

Optic nerve. Anatomy. Blood supply

Retina. Its structure functions of cones and rods.

Lens. Anatomy. Blood supply. Properties. Functions

Orbit. Structure. Its content.

Blood supply of the eye.

Eyelids muscles. Anatomy. Blood supply. Properties. Innervation. Functions.

Conjunctive. Anatomy. Blood supply. Properties. Innervation.

Lacrimal system. Methods of investigation.

Oculomotor muscles of eye. Anatomy. Blood supply. Properties. Innervation. Functions

Mesopic vision. Adaptation. Abnormalities. General ophthalmology. Methods of diagnosis

Investigation of central vision. Visual acuity. Units. Visual angle.

Visual angle. Principles of tables for measurements of visual acuity.

Peripheral vision. Normal borders. Scotomas. Methods of diagnosis. Abnormalities of visual field.

Color vision. Color and main characteristics. Main types of color vision. Diagnosis of color vision abnormalities.

Science about refraction. Optic system of eye. Units. Concept about physical refraction.

Clinical types of refraction

Methods of investigation of refraction

Correction of ametropia in children. Contact lenses.

Length and volume of accommodation. Its connection with refraction. The dots of the best vision.

Accommodation. Changing with age. Presbiopia. Correction depending on age.

Hyperopia. Incidence. Its clinic characteristics. Stages. Methods of investigation. Aging and its changes. Correction. Complications.

Miopia. Incidence. Its clinic characteristics. Stages. Methods of investigation

Complications of progressive myopia. Correction. Methods of treatment. Surgical treatment. Contact lenses. Refractive surgery.
Astigmatism. Incidence. Its clinic characteristics. Types. Methods of investigation. Methods of treatment. Surgical treatment. Contact lenses. Refractive surgery.
Binocular vision. Its essence. Physiological diplopia. Conditions of binocular vision. Role of central nervous system in it. Fusion. Methods of diagnosis of its abnormalities.

Module 2

Methods of examination of the anterior segment of the eye (focal, bifocal illumination, biomicroscopy).
Methods of investigation of optical environments of the eye.
Clinical course and methods of treatment of acute inflammation of the mucous membrane.
Clinical findings, etiology and methods of treatment of chronic conjunctivitis.
Gonoblenorrhoe infants and adults. Prevention.
Adenoviral conjunctivitis. Their clinic and treatment.
Diphtheria of the eye. Her clinic, diagnosis, treatment.
Differential diagnosis of follicular lesions of the conjunctiva (trachoma, folliculitis, follicular conjunctivitis).
General principles of trachoma treatment.
Stages of trachoma, their clinic. Public and personal prevention of trachoma teak.
Complications of trachoma of the eyelids and cornea.
Classification of keratitis. General principles of their treatment.
Clinic and consequences of keratitis.
Ulcers of the cornea. Clinical picture and treatment.
Parenchymal keratitis. His clinic and treatment.
Herpetic keratitis. Their diagnosis and treatment
Serous iridocyclitis. Its clinical features, course, diagnosis, treatment.
Clinical signs of fibrinous iridocyclitis, etiology, pathogenesis, methods of treatment.
Complications and consequences of iridocyclitis.
Treatment of iridocyclitis. Pupil enlargement. Indications and contraindications to their use.
Ways of outflow of intraocular fluid.
Dynamic classification of glaucoma.
Methods for early diagnosis of glaucoma. Value of dispensary examination of patients with glaucoma.
Clinical forms of primary glaucoma, treatment.
Differential diagnosis of primary glaucoma and cataracts.
An acute closure angle glaucoma, clinical picture. Differential diagnosis with iridocyclitis.
First aid in acute closure angle glaucoma.
Secondary glaucoma, its causes, clinic, treatment.
Congenital glaucoma, its causes, clinic and treatment.
Anomalies of the lens position, diagnosis, complications, treatment.
Congenital cataract. Clinic, diagnosis, treatment methods.
Stages of cataract senile development. Diagnosis and treatment.
Diagnosis and treatment of conservative initial stages of senile cataracts.
Traumatic cataract. Features of its course, complication, surgical treatment.
Complicated cataract, its causes, clinic, treatment.
Secondary cataract, its clinic, causes, surgical treatment.
Aphasia, its features, correction.

Module 3

The main conditions of binocular vision. The value of binocular vision in the choice of profession.
Common strabismus, diagnosis, types.
Hidden squint, clinic, diagnosis.
Imaginary strabismus, clinic, diagnosis.
Principles of treatment of common strabismus.
Paralytic strabismus, its features, differential diagnosis, treatment methods.
Signs of penetrating wounds of the eyeball. First aid to them.
Penetrating eye injuries complicated by the presence of a foreign body. Methods of localization of a foreign body in the eye.
Principles of removal of intraocular foreign bodies in penetrating eye injuries.
Complications of penetrating wounds.
Sympathetic inflammation, its clinic, prevention, treatment.
Contusions of the eyeball. Their manifestations and treatment.
Foreign corneal bodies and first aid with them.
Electroophthalmia. Its clinical manifestations and first aid.
Endophthalmitis and panophthalmitis. Their clinic, causes, treatment.
Chemical eye burns, clinic, first aid.
Thermal eye burns, clinic, first aid.
Intraocular tumors, clinical course, treatment.
Military medical examination for eye disease.
Detection of agitation and simulation. Control methods of visual acuity detection.
Establishing a disability group due to impaired vision.
Ophthalmoscopy, its types.
Picture of a normal fundus.
Clinic of optic neuritis. Causes, differential diagnosis with congestive optic disc.
Ophthalmoscopic picture of the stagnant optic disc. Its importance in the diagnosis of brain tumors.
Changes in fundus in hypertension
Changes in fundus and diabetes.
Changes in the fundus in blood diseases.
Changes in AIDS fundus.
Retinal detachment, etiology, clinic, treatment.
Acute disorders of the retinal circulation. Causes, clinic, treatment.

Oriental list of practical skills for differentiated credit

Be able to:

determine visual acuity by subjective method
determine the color sensation with Rabkin's polychromatic tables
determine the field of view by the control method and using the arc perimeter
determine the dark adaptation by the orientation method

Be able to conduct research and evaluate results:

review and twist for ages
examination of the cornea by the side illumination method
to examine the sensitivity of the cornea
palpation to determine the sensitivity of the body
palpation to determine intraocular pressure

exploring the lens in a passing light
determination of the angle of strabismus on Hirschberg

Be able to conduct first aid in:

acute iridocyclitis
acute conjunctivitis
the foreign body of the conjunctiva, the cornea
acute closure angle glaucoma
penetrating eye injuries
chemical and thermal eye burns

Recommended study literature

1. Vitovska O.V., P.A. Bezditko P.A., Bezkorovayna I.M. et al. / Ophthalmology: textbook; 2nd edition. / Всеукраїнське спеціалізоване видавництво «Медицина». – 2020. – 648 pages.
2. Vitovska O.V. / Ophthalmology. Practical course / Всеукраїнське спеціалізоване видавництво «Медицина». – 2021. – 160 pages.
3. Lang Gerhard K. Ophthalmology / 3rd edition / Stuttgart; – Thieme – 2015. – 400 pages.
4. Vaughan & Asbury's General Ophthalmology: Paul Riordan-Eva, James J. Augsburger / LANGE Clinical Medicine - series / McGraw-Hill Education / Medical; 19th edition; –2017. – 528 pages.
5. Kanski Jack J. Clinical Ophthalmology: a systematic approach / Butterworth-Heinemann; 5th edition – 2003. – 748 pages
6. Kanski Jack J., Brad Bowling Clinical Ophthalmology: A Systematic Approach: Expert Consult: Online and Print/ Saunders; 7 edition – 2011. – 920 pages.
7. Khurana A.K. / Comprehensive Ophthalmology; 7th edition, Jaypee Brothers Medical Publishers; – 2019. – 672 pages.