



## CD8.5.1 DISCIPLINE CURRICULUM

Edition:

06

Date:

20.09.2017

### FACULTY OF MEDICINE NO 2 STUDY PROGRAM 0912.1 MEDICINE CHAIR OPHTHALMOLOGY

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum faculty Medicine no 2

Minutes No. 7 of 6.03.2018

Chairman PhD, associate professor,  
Suman Serghei [Signature]

APPROVED

at the Council meeting of the Faculty Medicine no 2

Minutes No. 4 of 20.03.2018

Dean of Faculty of Medicine no. 2  
PhD, associate professor  
Bețiu Mircea [Signature]

APPROVED

approved at the meeting of the chair Ophthalmology

Minutes No. 7 of 02.03.18

Head of chair PhD, professor

Bendelic Eugeniu [Signature]

## SYLLABUS

### DISCIPLINE OPHTHALMOLOGY

#### Integrated studies

Type of course: **Compulsory**

Chisinau, 2017



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### I. INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional/specialty training program**

Ophthalmology is a specialty, which deals with the detection, diagnosis, treatment and recovery of patients with diseases of eyeball and its accessory structures. Ophthalmology is an interdisciplinary, integrative clinical medical discipline, the study of which at the university level will allow the creation of the necessary skills to support a correct diagnosis based on anamnesis, clinical and paraclinical examination, acquisition of the practical skills required to solve emergency ophthalmological cases, and choosing the right curative management. The content of the course is structured to provide theoretical support and to cultivate the capabilities, skills and attitudes, which are irreplaceable in medical practice in visual analyzer pathology.

- **Mission of the curriculum (aim) in professional training**

One of the main objectives of the course is to acquire basic knowledge of notions in ophthalmological semiology and propedeutics. The second objective is to develop the professional capacities to provide emergency medical care in ophthalmology. The third objective is to know the protocols for the detection of eye diseases, which lead to blindness, and which can be avoided (e.g. glaucoma, cataract, amblyopia). The fourth objective is the orientation of family medicine training with the ability to detect the most common ocular pathologies (conjunctivitis, glaucoma, cataract, eye trauma, etc.).

- **Language of the course:** English.
- **Beneficiaries:** students of the IV year, faculty Medicine No.2.

### II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		<b>S.07.O.063</b>	
Name of the discipline		<b>Ophthalmology</b>	
Person(s) in charge of the discipline		<b>Professor Eugeniu Bendelic; associate professor Ala Paduca</b>	
Year	<b>IV</b>	Semester/Semesters	<b>VII-VIII</b>
Total number of hours, including:			<b>90</b>
Lectures	<b>14</b>	Practical/laboratory hours	<b>17</b>
Seminars	<b>18</b>	Self-training	<b>35</b>
Clinical internship			<b>6</b>
Form of assessment	<b>E</b>	Number of credits	<b>3</b>

### III. TRAINING AIMS WITHIN THE DISCIPLINE

*At the end of the discipline study the student will be able to:*

- ✓ *at the level of knowledge and understanding:*

- To identify anatomical and physiological features of the visual system;
- To establish the topical diagnosis based on defined clinical syndromes;
- To know thoroughly the etiopathogenesis, clinical features, diagnosis, treatment principles and prevention of the most common ocular diseases.



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✓ **at the application level:**

- To take the anamnesis and evaluate the data about visual system functions;
- To perform the ophthalmologic examination;
- To apply the diagnostic methods in ocular pathologies;
- To evaluate the results of clinical trials and tests, additional diagnostic investigations to appreciate the functional status of the visual system;
- To apply the methods of examination of emergency patient, evaluate these results and provide the necessary first aid.

✓ **at the integration level:**

- To appreciate the importance of ophthalmology in the context of Medicine and integration with related medical disciplines;
- To appreciate the evolution of the physiological processes and etiology of the pathological processes of the visual system;
- To supervise the pathological processes and to use the methods of investigation, treatment and prophylaxis of visual analyzer diseases
- To evaluate the results of the diagnostic methods in ophthalmologic diseases;
- To develop scientific research projects in Ophthalmology;
- To have skills to implement and integrate clinical knowledge;
- To be able to assimilate new achievements in clinical disciplines.

#### IV. PROVISIONAL TERMS AND CONDITIONS

Student of the IV year requires the following:

- knowledge of the language of education;
- confirmed competences in lyceum sciences (biology, physics) and thorough knowledge gained in fundamental disciplines such as: anatomy, physiology, biochemistry and others.
- digital competences (use of the Internet, processing of documents, electronic tables and presentations, use of graphics programs);
- ability to communicate and to work in a team;
- such qualities, as tolerance, compassion, autonomy.

#### V. THEMES AND ESTIMATE ALLOCATION OF HOURS

A. Lectures

No. d/o	Theme	Number of hours
1.	Anatomic and clinical features of the visual analyzer. Functions of the visual system: photosensitivity, central vision, peripheral vision, chromatic vision.	2
2.	Clinical optics (refraction) of the eye. Accommodation of the eye. Binocular vision and its disturbances. Neutralization, amblyopia. General notions in strabismus.	2
3.	Diseases of the accessory structures of the eye: eyelids, conjunctiva, lacrimal system. Diseases of the cornea and sclera.	3
4.	Congenital and acquired diseases of the lens. Glaucoma: etiopathogenesis, clinical manifestations, treatment.	2
5.	Uveal pathology: iridocyclitis, choroiditis. Diseases of the retina and the optic nerve. Intraocular tumors.	3
6.	Ocular trauma and trauma of ocular adnexa.	2
<b>Total</b>		<b>14</b>



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### B. Practical Hours/ Laboratory Hours/ Seminars:

No. d/o	Theme	Number of hours		
		S	PH	LH
1.	<b>Anatomic and clinical features of the visual analyzer.</b> Three segments of the visual analyzer according to Pavlov. Particularities of the orbital structure and the orbital relation with the paranasal sinuses. Accessory structures of the eye: the eyelids, the lacrimal system and the conjunctiva: structure and functions. Coats of the eyeball: external (cornea and sclera), medium (uvea), internal (retina): structure and functions. Structure of the anterior chamber angle. Ways of production and evacuation of the aqueous humor. Content of the eyeball: the lens, the vitreous and the aqueous humor. Optical pathway of visual system. Oculo-motor system. Oculo-motor nerves.	1	1	3,5
2.	<b>Functions of the visual system, its possible disturbances and examination methods.</b> Function of rods and cones, the importance of vitamin A in the visual act. Photosensitivity, its disturbances and examination methods. Central vision, examination methods. Peripheral vision, major disturbances and examination methods. Chromatic sense: anomalies of the chromatic sense (congenital, acquired), examination methods.	2	2	3.5
3.	<b>Clinical refraction and accommodation of the eye.</b> Optical system of the eye. Clinical refraction and examination methods. Hypermetropia: classification, clinical manifestations, treatment. Myopia: classification, clinical manifestations, complications, treatment. Accommodation of the eye. Disorders of accommodation.	2	2	3.5
4.	<b>Binocular vision and its disturbances.</b> Neutralization, amblyopia. Examination methods for binocular vision. <b>Notions in strabismus</b> - classification, etiology, pathogenesis, clinical manifestations. Comitant strabismus vs. paretic strabismus. Methods of examination. The management of strabismus. Methods of prophylaxis.	2	1	3.5
5.	<b>Diseases of the eyelid, conjunctiva, and lacrimal system.</b> Blepharitis: etiology, clinical manifestations, treatment. Blepharospasm, ptosis, lagophthalmos: causes, treatment. Hordeolum (stye): clinical manifestations, treatment. Chalazion: etiology, clinical manifestations, treatment. Benign and malignant eyelid tumors: clinical manifestations, treatment. Dacryoadenitis: clinical manifestations, treatment. Acute and chronic dacryocystitis: clinical manifestations, treatment. Bacterial, viral and allergic conjunctivitis: clinical manifestations, treatment, prophylaxis. Pterygium: clinical manifestations, treatment.	2	2	3.5
6.	<b>Diseases of the cornea and sclera.</b> Classification of keratitis and etiological factors. Serpiginous corneal ulcer: clinical manifestations, treatment. Viral (herpetic) keratitis: clinical manifestations, treatment. Interstitial (syphilitic and tuberculous) keratitis: clinical manifestations, treatment. Keratoconus. Episcleritis and scleritis: etiology, clinical manifestations, treatment.	2	2	3.5
7.	<b>Congenital and acquired diseases of the lens.</b> Congenital cataract: etiologic factors, clinical manifestations, treatment. Acquired cataract, etiologic factors, clinical manifestations, treatment	1	1	3.5
8.	<b>Diseases of the uvea, retina and optic nerve.</b> Uveitis: classification, etiology. Iridocyclitis: clinical manifestations, treatment. Choroiditis: clinical manifestations, treatment. Retinal vessel spasm, embolism (occlusion) and thrombosis, clinical manifestations, emergency medical care. Pathology of the eye in diabetes mellitus, hypertension and kidney diseases. Intraocular tumors: diagnosis, treatment. Retinal detachment: clinical manifestations, treatment. Optical neuritis (papillitis and retrobulbar neuritis). Papillary stasis, optic nerve atrophy, etiologic factors, clinical manifestations, treatment.	2	2	3.5
9.	<b>Glaucoma.</b> Classification, pathogenesis and methods of diagnosis. Primary open-angle glaucoma: clinical manifestations, treatment. Acute glaucoma: clinical manifestations, differential diagnosis, treatment. Secondary glaucoma: etiology,	2	2	3.5



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	clinical manifestations. Congenital glaucoma: clinical manifestations, treatment.			
10.	<b>Eye trauma.</b> Causes and forms of eye trauma. Clinical signs of orbital lesions, treatment. Eyelid, conjunctiva lesions. Eye contusions: clinical manifestations, treatment. Ocular penetrating trauma: clinical manifestations, treatment. Sympathetic ophthalmia: etiology, clinical manifestations, treatment. Ocular actinic burns: treatment, prophylaxis. Ocular chemical burns: clinical manifestations, treatment. Particularities of trauma in children and its prophylaxis. Occupational eye diseases (blepharitis, conjunctivitis, keratitis, cataracts): prophylaxis.	2	2	3.5
11.	<b>Practical skills</b>	6		
		<b>18</b>	<b>17</b>	<b>35</b>
Total		<b>76</b>		

### VI. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units
<b>Chapter 1. Anatomic and clinical features of the visual analyzer. Functions of the visual system.</b>	
<ul style="list-style-type: none"> <li>• To define the notions in clinical semiology of the visual system</li> <li>• To know the structure and functions of the eyeball and accessory structures of the eye</li> <li>• To demonstrate the examination of the accessory structures of the eye, the anterior pole of the eye (with diffuse light, focused light).</li> <li>• To apply the collection and interpretation of the ophthalmological anamnesis</li> <li>• To determine the light perception and its disturbances; to determine visual acuity (VA) in adults and children</li> <li>• To possess skills for local administration of ophthalmic medicines</li> <li>• To examine the visual field (comparative method, perimetry, campimetry), visual field disturbances: scotomas, hemianopsias, etc. and to interpret them</li> <li>• To determine the chromatic sense and detect dyschromatopsia.</li> </ul>	<p>Accessory structures of the eye: the eyelids, the lacrimal system and the conjunctiva: structure and functions. Coats of the eyeball: external (cornea and sclera), medium (uvea), internal (retina): structure and functions. Structure of the anterior chamber angle. Ways of production and evacuation of the aqueous humor. Content of the eyeball: the lens, the vitreous and the aqueous humor. Optical pathway of visual system. Oculo-motor system. Oculo-motor nerves. Function of rods and cones, the importance of vitamin A in the visual act. Photosensitivity, its disturbances and examination methods. Central vision, examination methods. Peripheral vision, major disturbances and examination methods. Chromatic sense: anomalies of the chromatic sense (congenital, acquired), examination methods.</p>
<b>Chapter 2. Clinical optics (refraction) of the eye. Accommodation of the eye. Binocular vision and its disturbances. Notions in strabismus.</b>	
<ul style="list-style-type: none"> <li>• To know the basic symptoms of the ocular refraction errors</li> <li>• To detect refractive errors by the subjective method</li> <li>• To know the basic principles of management of ocular refractive errors</li> <li>• To know the mechanism of ocular accommodation and its disorders</li> <li>• To know the principle of optical management of presbyopia</li> </ul>	<p>Clinical and physical refraction. Errors of ocular refraction - Myopia, Hypermetropia - symptomatology, management.</p> <p>Accommodation of the eye. Disorders of accommodation - presbyopia, spasm of accommodation, paralysis of accommodation</p>
<ul style="list-style-type: none"> <li>• To know the mechanism of binocular vision development, its importance</li> <li>• To know the basic methods of examination of binocular vision</li> <li>• To know the major binocular and monocular vision disorders.</li> <li>• To know the major types and forms of strabismus</li> <li>• To be able to distinguish a functional strabismus from a paralytic one</li> </ul>	<p>Binocular vision - development, examination. Disorders of binocular and monocular vision, neutralization and amblyopia - causes, management, prophylaxis.</p> <p>Notions in strabismus. Differential diagnosis of paralytic and functional strabismus. Management of patients with strabismus and prophylaxis.</p>



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Objectives	Content units
<ul style="list-style-type: none"> <li>To evaluate the degree of ocular deviation using the Hirshberg method</li> <li>To know the basic principles of strabismus management</li> </ul>	
<b>Chapter 3. Diseases of the eyelid, conjunctiva, and lacrimal system. Diseases of the cornea and sclera.</b>	
<ul style="list-style-type: none"> <li>To perform eyelid eversion, examination of palpebral conjunctiva, inferior and superior conjunctival fornix and conjunctival layer of bulb</li> <li>To define the symptoms of "dry eye" and "wet eye"</li> <li>To examine the function of the lacrimal gland and the permeability of the tear pathways</li> <li>To differentiate the symptoms of bacterial conjunctivitis from viral and allergic conjunctivitis</li> <li>To know the particularities of corneal disease symptoms (corneal syndrome) based on clinical cases</li> <li>To examine corneal sensitivity with distinguishing of corneo-conjunctival lesions (fluorescein test).</li> </ul>	Blepharitis. Blepharospasm, ptosis, lagophthalmos. Hordeolum. Chalazion. Benign and malignant eyelid tumors. Dacryoadenitis. Acute and chronic dacryocystitis. Bacterial, viral and allergic conjunctivitis. Pterygium. Diseases of the cornea and sclera. Serpiginous corneal ulcer. Viral (herpetic) keratitis. Interstitial (syphilitic and tuberculous) keratitis. Keratoconus. Episcleritis and scleritis. Myopia. Hypermetropia. Astigmatism. Presbyopia.
<b>Chapter 4. Congenital and acquired diseases of the lens. Glaucoma.</b>	
<ul style="list-style-type: none"> <li>To know the particularities of examining patients with lens diseases, based on clinical cases</li> <li>To know general principles of cataract treatment and indications for surgical treatment</li> <li>To integrate differentiation of primary open-angle and angle closure glaucoma symptoms</li> <li>To differentiate primary and secondary glaucoma</li> <li>To determine the intraocular pressure</li> <li>To apply diagnostic methods to confirm or infirm glaucoma</li> <li>To provide emergency medical care in acute glaucoma</li> <li>To know the principles of complex glaucoma treatment</li> <li>To integrate the particularities of the conduct of glaucoma patients</li> </ul>	Congenital cataract. Acquired cataract. Glaucoma. Classification, pathogenesis and methods of diagnosis. Primary open-angle glaucoma. Acute glaucoma. Secondary glaucoma. Congenital glaucoma.
<b>Chapter 5. Diseases of the uvea, retina and optic nerve.</b>	
<ul style="list-style-type: none"> <li>To examine the pupil reflexes</li> <li>To examine the uveal tract and the posterior pole: optic nerve, macular region, retinal vessels, retinal periphery (principles of ophthalmoscopy).</li> <li>To know the particularities of the symptoms of inflammatory diseases at different levels of the uveal tract.</li> <li>To integrate acute iridocyclitis management into differential diagnosis</li> <li>To know the particularities of retinal disease symptomatology based on clinical cases</li> <li>To apply central artery and vein occlusion management</li> <li>To perform the differential diagnosis of primary and secondary retinal detachment</li> <li>To differentiate the symptoms of papillitis, retrobulbar neuritis and papillary stasis.</li> </ul>	Uveitis. Iridocyclitis. Choroiditis. Retinal vessel spasm, embolism (occlusion) and thrombosis. Pathology of the eye in diabetes mellitus, hypertension and kidney diseases. Intraocular tumors. Retinal detachment. Optical neuritis (papillitis and retrobulbar neuritis). Papillary stasis, optic nerve atrophy.
<b>Chapter 6. Eye and ocular adnexa trauma</b>	
<ul style="list-style-type: none"> <li>To provide urgent medical first aid in case of conjunctival and corneal foreign bodies</li> <li>To apply monocular and binocular bandages</li> </ul>	Eye trauma. Orbital traumatic lesions. Eyelid, conjunctival lesions. Eye contusion. Ocular penetrating trauma. Sympathetic ophthalmia.



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Objectives	Content units
<ul style="list-style-type: none"><li>• To know the particularities of the symptomatology and the primary management of penetrating ocular injuries</li><li>• To know the methods of detection of intraocular foreign bodies</li><li>• To know the particularities of symptomatology and medical care in ocular contusion</li><li>• To know and to possess the first aid (emergency medical care) in case of ocular burns</li></ul>	Ocular actinic burns. Ocular chemical burns. Particularities of trauma in children. Occupational eye diseases.

### VII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

#### ✓ Professional (specific) (SC) competences

- **PC1.** Strong knowledge of the particularities of the structure, development and functioning of the visual analyzer in various physiological and pathological states.
- **PC2.** Performing various practical exercises and procedures for carrying out specific professional activities in ophthalmology;
- **PC3.** Development of the diagnosis, treatment and rehabilitation plan in various pathological situations and selection of the appropriate therapeutic procedures for them, including the provision of ophthalmic emergency medical care;
- **PC4.** The use of medical techniques, instrumental and laboratory investigations, digital technologies for solving the tasks specific to the therapeutic treatment of the ophthalmic patient.
- **PC5.** Planning, coordinating and conducting health promotion activities and prophylactic measures to improve individual and community health.

#### ✓ Transversal competences (TC)

- **TC1.** Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force. Promoting logical reasoning, practical applicability, evaluation and self-assessment in decision-making;
- **TC2.** Performing activities and exercising the roles specific to team work in various medical institutions. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous improvement of their own activities;
- **TC3.** Objective self-evaluation of the need for continuous professional training in order to provide quality services and adapt to the dynamics of health policy requirements and for personal and professional development. Effective use of language skills, knowledge in information technologies, research and communication skills.

#### ✓ Study outcomes

- To appreciate the importance of ophthalmology in the context of Medicine and integration with related medical disciplines;
- To be competent to use critical and reliable scientific information obtained using the new information and communication technologies
- To appreciate the evolution of the physiological processes and etiology of the pathological processes of the visual analyzer;
- To supervise the pathological processes and to use the methods of investigation, treatment and prophylaxis of visual analyzer diseases;
- To evaluate the results of the diagnostic methods in ophthalmologic diseases;
- To develop scientific research projects in Ophthalmology;



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- To have skills to implement and integrate clinical knowledge;
- To be able to assimilate new achievements in clinical disciplines.

### VIII. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Work with information sources	<p>Mindful study of the lecture or the material in the manual on the theme.</p> <p>Reading the questions on the theme, which require a reflection on the subject.</p> <p>To get acquainted with the list of additional information sources on the topic. Select the source of additional information for that theme.</p> <p>Reading the text entirely, mindfully and writing the essential content.</p> <p>Formulating of generalizations and conclusions regarding the importance of the theme/subject.</p>	Ability to extract the essentials; interpretative skills; volume of work	During the semester
2.	Work with activity book	<p>To analyze the information and images on the respective subject in the lecture and handbook until solving the tasks in the notebook. Consecutive solving of tasks. Formulating conclusions at the end of each lesson. Verifying the finalities of the respective lesson and appreciating of their achievement. Selection of additional information, using electronic addresses and additional bibliography.</p>	Volume of work, solving of the situational problems, ability to formulate conclusions.	During the semester
3.	Practice of different studying techniques		Volume of work, degree of understanding the essence of different topics, level of scientific argumentation, quality of conclusions, elements of creativity, demonstration of understanding the problem, formation of personal attitude	During the semester





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4.	Work with online sources	Online self-evaluation, study of online materials from the chair site, expressing own opinions through forum and chat.	Number and duration of entries on the site, self-evaluation results	During the semester
5.	Elaboration and presenting of presentations/portfolios	Choosing of the research theme, establishment of the research plan, setting the terms of realization. Establishing Power Point project/theme components - theme, purpose, results, conclusions, practical applications, bibliography. Colleagues reviews. Teacher reviews.	Volume of work, degree of understanding the essence of the project theme, the level of scientific argumentation, the quality of conclusions, elements of creativity, formation of the personal attitude, coherence of the explanation and the scientific correctness, graphic presentation, way of presentation.	During the semester

### IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

- **Teaching methods used**

The teaching of the Ophthalmology discipline uses different ways and didactic methods, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. In the theoretical lessons, along with traditional methods (lesson-exposure, lesson-conversation, synthesis lesson), modern methods (lesson-discussion, lesson-conference, problem-lesson) are also used. There are used individual, frontal, group activity forms and virtual lab works in the practical hours. In order to assimilate deeper the material, different semiotic systems (scientific language, graphical and computerized language) and teaching materials (tables, diagrams, micro photographs, posters) are used. During the lessons and extracurricular activities there are used Communication Technologies – Power Point presentations, online lessons.

- **Recommended learning methods**

- ✓ **Observation** - Identification of the elements characteristic for structures or biological phenomena, description of these elements or phenomena.
- ✓ **Analysis** - Imaginary decomposition of the whole into component parts. Highlighting the essential elements. Studying each element as part of the whole.
- ✓ **Scheme/figure analysis** - Selection of the necessary information. Recognition of structures shown in schemes and figures based on selected knowledge and information. Analysis of the functions/role of recognized structures.
- ✓ **Comparison** - Analysis of the first object/process from a group and determination of its essential features. Analysis of the second object/process and determination of its essential features. Comparing objects/processes and highlighting common features. Comparing objects/processes and determining differences. Establishment of difference criteria. Formulation of conclusions.
- ✓ **Classification** - Identification of the structures / processes that should be classified. Determining the criteria on which classification is should be made. Distribution of structures/processes by groups according to established criteria.



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- ✓ **Elaboration of the scheme** - Selection of elements, which must be included in the scheme. Interpretation of selected elements with different symbols/colors and indicating their relationships. Formulation of an appropriate title and legend of the symbols used.
- ✓ **Modeling** - Identifying and selecting the elements needed to model the phenomenon. The imaging (graphical, schematic) of the studied phenomenon. Realizing the phenomenon using the developed model. Formulation of conclusions, deduced from arguments or findings.
- ✓ **Experiment** - Formulation of a hypothesis, based on known facts, on the studied process/phenomenon. Verifying the hypothesis by performing the studied processes/phenomena in laboratory conditions. Formulation of conclusions, deduced from arguments or findings.

- **Applied teaching strategies / technologies**(specific to the discipline)

"Brainstorming" "Multi-voting"; "Round table"; "Group Interview"; "Clinical case study"; "Creative Controversy"; "Focus-group technique", "Portfolio".

Virtual Practical work.

- **Methods of assessment**(including the method of final mark calculation)

- ✓ **Current:** frontal and/or individual control through

- (a) applying docimological tests,
- (b) analysis of case studies
- (c) realization of role-plays on the topics discussed.

- ✓ **Final:** exam.

Student attendance, absence recovery activity and all grades will be listed by each group teacher in the group catalogs, for each series of lectures, catalogs that are kept obligatory by the course owner.

The final exam is a standardized exam, scheduled in the exam sessions, which contains three evaluation modes: practical test, written test (gridtest) and oral test.

*Practical test.* Student has 30 minutes for preparation after which the teacher examines the level reached in the training of practical skills, specific abilities and capacities according to the obligatory list. The test is scored from 0 to 10. The mark will be announced to the student at the end of the practical test.

*Written test.* The grid test includes variants of 100 questions each, from all subjects covered in the analytical curriculum of the discipline, according to the unique bibliography of the study discipline, displayed and announced to students at the beginning of the semester. 40 questions are of simple complement type, and 60 questions are of multiple complement type. The student has 2 hours to complete the test. All students in the year support the grid test under the same conditions (same time interval). The score is from 0 to 10. ALL of the notes are posted public.

*The oral test* is done by offering to the student 3 subjects, including the clinical case (the selection of the exam paper is done by drawing lots), from the whole subject included in the analytical curriculum of the discipline, according to a unique topic displayed in the discipline, according to the bibliography displayed and announced to the students from the beginning of the semester. The student has 30 minutes to prepare for the answer. Examination is achieved by appreciating the correctness of the student's answers to the topics of the exam paper, as well as additional questions. The test is scored from 0 to 10. The mark will be announced to the student at the end of the test.

**The final mark** will consist of the average mark of four current tests (part 0.3), the marks of all of the final examination stages (practical skills - part 0.2, written test - part 0.2, oral answer - part 0.3) – they will be expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.



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### Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

*Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.*

### X. RECOMMENDED LITERATURE:

#### A. Compulsory:

1. Lecture material.
2. International Council of Ophthalmology Handbook for Medical Students Learning Ophthalmology [PDF]. ICO Handbook for Medical Students Learning Ophthalmology. [www.icoph.org/downloads/icomedicalstudentenglish.pdf](http://www.icoph.org/downloads/icomedicalstudentenglish.pdf).
3. Nicula, Cristina. Ophthalmology. /C. Nicula; University of Medicine and Pharmacy "Iuliu Hațieganu", Cluj-Napoca. - Cluj-Napoca: Editura Medicală Universitară "Iuliu Hațieganu", 2011. - 136 p.. - ISBN 978-973-693-435-3.

#### B. Additional:

1. Practical Ophthalmology (PDF Download Available). <https://www.researchgate.net/publication/316107859> Practical Ophthalmology
2. Ophthalmology. A Short Textbook, New York, 2000, Gerhard K. Lang, M. D. 305 Illustrations. [www.gulfkids.com/pdf/ATLAS%20-%20Ophthalmology.pdf](http://www.gulfkids.com/pdf/ATLAS%20-%20Ophthalmology.pdf)
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