

MUHS Ophthalmology CBME U.G Curriculum

(a) **Competencies:** The student must demonstrate :

1. Knowledge of common eye problems in the community
2. Recognize, diagnose and manage common eye problems and identify indications for referral,
3. Ability to recognize visual impairment and blindness in the community and implement National programmes as applicable in the primary care setting.

(b) **Integration:** The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of ophthalmologic problems, their management and correlation with function, rehabilitation and quality of life.

TEACHING METHODS & HOURS

	Large Group Teaching	Small group teaching/Practical /Tutorials	SDL	AETCOM	Total	Clinical/Field Posting
	-	-	-	-	-	-
3 rd part I/II	30 hours	60 hours	10 hours	MODULE 3.2	100 hours	PHASE 2 PHASE 3
Total	30 hours	60 hours	10 hours		100 hours	8 weeks

CURRICULUM

UG CURRICULUM FOR LARGE GROUP TEACHING

Topic code	Topic	No. of hours (30)	Integration	Method of Teaching
	Visual Acuity Assessment			
OP1.1	Describe the physiology of vision	1 hr	physiology	LGT
OP1.2	Define, classify and describe the types and methods of correcting refractive errors	2 hrs		LGT
OP1.4	Enumerate the indications and describe the principles of refractive surgery	1 hr		LGT
	Lids and Adnexa, orbit			
OP2.1	Enumerate the causes, describe and discuss the etiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including	2 hr	Human anatomy	LGT

	Hordeolum externum / internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos			
OP2.6	Enumerate the causes and describe the differentiating features and clinical features of proptosis	1 hr		LGT
	Conjunctiva			
OP3.3	Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of various causes of conjunctivitis	2hr		LGT
	Corneas			
OP4.1 & OP4.2	Enumerate, describe and discuss the types and causes of corneal ulceration Enumerate and discuss the differential diagnosis of infective Keratitis	3 hr	Human anatomy	LGT
OP4.4	Enumerate the causes and discuss the management of dry eye	1hr		<u>LGT</u>
OP4.5	Enumerate the causes of corneal blindness	1 hr		<u>LGT</u>
OP4.6	Enumerate the indications and types of keratoplasty	1 hr		<u>LGT</u>
OP4.9	Describe and discuss the importance and protocols involved in eye donation and eye banking	1 hr		<u>LGT</u>
	Iris and Anterior Chamber			
OP6.1	Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non granulomatous inflammation.	2 hrs		<u>LGT</u>
OP6.2	Identify and distinguish acute iridocyclitis from chronic iridocyclitis			
OP6.7	Enumerate and discuss the aetiology, the clinical distinguishing features of shallow and deep anterior chamber. Choose appropriate investigations for patients with above conditions of anterior chamber	4 hr	<u>Human Anatomy</u>	<u>LGT</u>
	Lens			

OP7.2	Describe and discuss the aetio-pathogenesis , stages of maturation and complications of cataract	1 hr	<u>Pathology</u>	<u>LGT</u>
OP7.4	Enumerate the types of cataract surgery and describe the steps intraoperative and postoperative complications of extracapsular cataract extraction surgery	1 hr		<u>LGT</u>
	Retina & Optic Nerve			
OP8.1	Discuss the aetiology , pathology , clinical features and management of vascular occlusion of the retina	1 hr	<u>Human Anatomy</u> ^ <u>Pathology</u>	<u>LGT</u>
OP8.3	Demonstrate the correct technique of a fundus examination and describe and distinguish the fundoscopic features in normal condition and in conditions causing abnormal retinal exam	1 hr		<u>LGT</u>
OP8.5	Describe and discuss the correlative anatomy , aetiology , clinical manifestations, diagnostic tests , imaging and management of diseases of optic nerve and visual pathway	2 hr		<u>LGT</u>
	Miscellaneous			
OP9.2	Classify , enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus	1 hr		<u>LGT</u>
OP9.5	Describe the evaluation and enumerate the steps involved in the stabilization , initial management and indication for referral in a patient with ocular injury	1 hr		<u>LGT</u>

UG CURRICULUM FOR SMALL GROUP TEACHING

Topic code	Topic	No. of hours (60)	Integration	Method of Teaching
	Visual Acuity Assessment			
OP1.5	Define, enumerate the types and the mechanism by which strabismus leads to amblyopia	2 hr		<u>SGT</u>
	Lids and Adnexa, orbit			
OP2.4	Describe the aetiology , clinical presentation, Discuss the complication and management of orbital cellulitis	2 hr		<u>SGT</u>
OP2.5	Describe clinical features on ocular examination and management of a patient with cavernous sinus thrombosis	2 hr		<u>SGT</u>
OP2.6	Enumerate the causes and describe the differentiating features and clinical features and management of proptosis	3 hr		<u>SGT</u>
OP2.7	Classify the various types of orbital tumors . Differentiate the symptoms and signs of the presentations of various types of ocular tumors	4 hr		<u>SGT</u>
OP2.8	List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications of appropriate referral	2 hr		<u>SGT</u>
	Conjunctiva			
OP3.4	Describe the etiology, pathophysiology , ocular features, differential diagnosis , complication and management of trachoma	2hr		<u>SGT</u>
OP3.5	Describe the etiology, pathophysiology , ocular features, differential diagnosis , complication and management of vernal catarrh	2 hr		<u>SGT</u>
OP3.6	Describe the etiology, pathophysiology , ocular features, differential diagnosis , complication and management of pterygium	2 hr		<u>SGT</u>

OP3.7	Describe the etiology, pathophysiology , ocular features, differential diagnosis , complication and management of symblepharon	1 hr		<u>SGT</u>
	Cornea			
OP4.3	Enumerate the causes of corneal edema	2 hr		<u>SGT</u>
OP4.7	Enumerate the indications and describe the methods of tarsorrhaphy	2 hr		<u>SGT</u>
	Sclera			
OP5.1	Define, enumerate and Describe the etiology, associated systemic conditions , ocular features, indications for referral , complication and management of episcleritis	2 hr		<u>SGT</u>
OP5.2	Define, enumerate and Describe the etiology, associated systemic conditions , ocular features, indications for referral , complication and management of scleritis	2 hr		<u>SGT</u>
	Iris and anterior chamber			
OP6.3	Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations	3 hr		<u>SGT</u>
OP6.4	Describe and distinguish hyphema and hypopyon	3 hr		<u>SGT</u>
OP6.5	Describe and discuss the angle of the anterior chamber and its clinical correlates	3 hr		<u>SGT</u>
OP6.8	Enumerate and choose the appropriate investigations for patients with conditions affecting the uvea	3 hr		<u>SGT</u>
OP6.9	Choose the correct local and systemic therapy for conditions of anterior chamber and enumerate their indications , adverse events and interactions	2 hr		<u>SGT</u>
	Lens			
OP7.1	Describe the surgical anatomy and the metabolism of lens	2 hr	<u>Anatomy & biochemistry</u>	<u>SGT</u>
	Retina and Optic Nerve			<u>SGT</u>

OP8.2	Enumerate the indications for laser therapy in the treatment of retinal disease (including retinal detachment, retinal degeneration , diabetic retinopathy and hypertensive retinopathy)	4 hr		<u>SGT</u>
OP8.8	Enumerate and discuss treatment modalities in management of diseases of retina	5hr		<u>SGT</u>
	Miscellaneous			
OP9.3	Describe the role of refractive error correction in a patient with headache and enumerate the indications of refral	2 hr		<u>SGT</u>
OP9.4	Enumerate, describe and discuss the causes of avoidable blindness and the national programs for control of blindness (including vision 2020)	3 hr		<u>SGT</u>

UG CURRICULUM FOR CLINICAL DEMONSTRATION/BED SIDE TEACHING / DOAP:

Topic code	Topic	No. of hours (10)	Integration	Method of Teaching
	Visual Acuity Assessment			
OP1.3	Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, color vision , the pin hole test and the menace and blink reflexes	1 hr	physiology	<u>DOAP</u>
	Lids and Adnexa , Orbit			
OP2.2	Demonstrate the symptoms and clinical signs of conditions enumerated in OP2.1	1 hr	Human Anatomy	<u>DOAP</u>
OP2.3	Demonstrate under supervision clinical procedure performed in the lid including : bells phenomenon, assessment of entropion / ectropion, perform the	1 hr		<u>DOAP</u>

	regurgitation test of lacrimal sac, massage technique in congdacryocystitis and trichiatic cilia removed by epilation			
	Conjunctiva			
OP3.1	Elicit document and present an appropriate history in a patient presenting with a “ red eye” including congestion , discharge , pain	1 hr		<u>DOAP</u>
OP3.2	Demonstrate document and present the correct method of examination of a red eye including vision assessment , corneal lustre, pupil abnormality, ciliary tenderness			
OP3.8	Demonstrate the correct technique of removal of foreign body from the eye in a simulated environment	1 hr		<u>DOAP</u>
OP3.9	Demonstrate the correct technique of instillation of eye drops in a simulated environment			
	Cornea			
OP4.8	Demonstrate the correct technique of removal of foreign body in cornea in a simulated environment			
OP4.10	Counsel patient and family about eye donation in a simulated environment	1 hr		<u>DOAP</u>
	Iris and Anterior Chamber			
OP6.6	Identify and demonstrate the clinical features and distinguish and diagnose common clinical conditions affecting the anterior chamber	1 hr		<u>DOAP</u>
OP6.10	Counsel patients with condition of iris and anterior chamber about their diagnosis , therapy and prognosis in an empathetic manner in a simulated environment			
	Lens			
OP7.3	Demonstrate the correct technique of ocular examination in a patient with cataract	1 hr		<u>DOAP</u>
OP7.5	To participate in team for cataract surgery	1 hr		<u>DOAP</u>
OP7.6	Administer informed consent and counsel			<u>DOAP</u>

	patient for cataract surgery in a simulated environment			
	Miscellaneous			
OP9.1	Demonstrate the correct technique the examine extraocular movements (unocular& binocular)	1 hr		<u>DOAP</u>

UG CURRICULUM FOR SDL

TOPIC CODE	TOPIC	TOTAL NO. OF HOURS	INTEGRATION	METHOD OF TEACHING
Competency OP 4.5	Enumerate the causes of corneal blindness Enumerate the indications and types of keratoplasty	1 st Hour – Introduction 2 nd Hour – symposium 3 rd Hour - feedback Total : 3 hours		SDL
Competency OP 9.4	Enumerate , describe and discuss the causes of avoidable blindness and the NPCB (Including VISION 2020)	1 st hour – Horizontal integration with community medicine 2 nd hour – orientation 3 rd hour- quiz Total : 3 hours	Horizontal integration with community medicine	SDL
Competency OP 6.7	Enumerate and discuss the aetiology, clinical features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above mentioned conditions	1 st hour – Introduction/ Orientation 2 nd hour – tutorials Total : 2 hours		SDL
Competency OP	Define , enumerate	1 st hour –		SDL

1.5	the types and the mechanism by which strabismus leads to amblyopia	introduction 2 nd hour – role play Total : 2 hours		
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Suggested books :

1. Parson's text book of Ophthalmology
2. Kanski's clinical Ophthalmology
3. Khurana's text book of Ophthalmology
4. Textbook of Ophthalmology, S.K Mittal (Thieme), 2021 edition

Internal Assessment

Subject – Ophthalmology

Applicable w.e.f batches admitted from 2019 and onwards

Phase		
	Theory	Practical
Second MBBS	-	EOP Practical Examination may be conducted. However, these marks shall not be added to the Internal Assessment.

3rd Year (III MBBS, PART I)						
Phase	I-Exam (March)			II-Exam Prelim (August)		
	Theory	Practical	Total Marks	Theory	Practical	Total Marks
III/I MBBS	50	50	100	100	100	200

Assessment in CBME is ONGOING PROCESS,

No Preparatory leave is permitted.

1. There shall be 2 internal assessment examinations in Ophthalmology including Prelim.
2. The suggested pattern of question paper for internal assessment internal examinations, except prelim examination is attached at the end. Pattern of the prelims examinations should be similar to the University examinations.
3. Internal assessment marks for theory and practical will be converted to out of 25 (theory) + 25 (practical). Internal assessment marks, after conversion, should be submitted to university within the stipulated time as per directives from the University. **Conversion Formula for calculation of marks in internal assessment examinations.**

	Theory	Practical
Phase II	-	-
Phase III/I	150	150
Total	150	150
Conversion out of	25	25
Conversion formula	Total marks in 2 IA theory examinations /6	Total marks in 2 IA Practical examinations /6
Eligibility criteria after conversion	10	10
	Combined theory + Practical = 25	

1. While preparing Final Marks of Internal Assessment, the rounding-off marks shall done as illustrated in following table.

Total Internal Assessment Marks	Final rounded marks
13.01 to 13.49	13
13.50 to 13.99	14

2. Students must secure at least 50% marks of the total marks (combined in theory and practical / clinical; not less than 40 % marks in theory and practical separately) assigned for internal assessment in order to be eligible for appearing at the final University examination of that subject.
3. Internal assessment marks will not to be added to marks of the University examinations and will be shown separately in mark list.
4. Remedial measures

A. Remedial measures for non-eligible students

- i) At the end of each internal assessment examination, students securing less than 50% marks shall be identified. Such students should be counseled at the earliest and periodically. Extra classes for such students may be arranged.
- ii) If majority of the students found to be weak in a particular area then extra classes must be scheduled for all such students. Even after these measures, if a student is failed to secure 50% marks combined in theory and practical (40% separately in theory and practical) after prelim examination, the student shall not be eligible for final examination.
- iii) Non eligible candidates are offered to reappear for repeat internal assessment examination/s, which must be conducted 2 months before next University examination. The pattern for this repeat internal assessment examination shall be similar to the final University examination. The marks in this examination shall be considered for deciding the eligibility criteria. Following conversion formula shall be used for converting the marks.

	Theory	Practical
Remedial examination	100	100
Conversion out of	25	25
Conversion formula	Marks in remedial theory examinations /4	Marks in remedial Practical examinations /4
Eligibility criteria after conversion	10	10
	Combined theory + Practical = 25	

B. Remedial measures for absent students:

- If any of the students is absent for any of the 2 IA examinations due to any reasons, following measures shall be taken.
- i. The student is asked to apply to the academic committee of the college for reexamination, through HOD, to ascertain the genuineness of the reason for absentee.

- ii. If permitted by academic committee, an additional examination for such students is to be conducted after prelims examination. Marks for such additional examination shall be equal to the missed examination.
- iii. Even if a student has missed more than one IA examination, he/she can appear for only one additional IA examination. In such scenario, eligibility should be determined by marks obtained in internal assessment examinations for which the candidate has appeared, without changing the denominator.

Format for Practical Examinations

Ophthalmology

Internal Assessment Practical

Seat No.	Long case including communication skills	OSCE (2 stations of 5 marks each)	Viva including Dark room instruments, Operative instruments	Log book and Journal viva	Practical Total
Max Marks	20	10	10	10	50

OSCE Stations to include Signs of General examinations, Local examinations, Psychomotor skills and Communication skills., history taking of a particular symptom.

Prelims and MUHS Final Practical

Seat No.	Long case including communication skills	OSCE (4 stations)	Log book and Journal viva	Dark room instruments	Operative instruments	Practical & Oral
Max. Marks	50	20	10	10	10	100

*Communication skills to be assessed by Kalamazoo Consensus, clinical signs to be assessed by either GLOBAL Rating Scale or OSCE, Psychomotor Skills to be assessed by OSCE with checklist. If the skills are small, 2 or 3 skills may be combined.

Internal Assessment Theory Examination (I)

Ophthalmology

Instructions:

SECTION "A" MCQ

- 1) Put in the appropriate box below the question number once only.
- 2) Use blue ball point pen only.
- 3) Each question carries **One mark**.
- 4) Students will not be allotted mark if he/she overwrites strikes or put white ink on the cross once marked.

SECTION "A" MCQ (10 Marks)

1. Multiple Choice Questions (Total 10 MCQ of One mark each) (1x10=10)
- a) b) c) d) e) f) g) h) i) j)

Instructions:

- 1) Use **blue/black** ball point pen only.
- 2) **Do not** write anything on the **blank portion of the question paper**. If written anything, such type of act will be considered as an attempt to resort to unfair means.
- 3) **All** questions are **compulsory**.
- 4) The number to the **right** indicates **full** marks.
- 5) Draw diagrams **wherever** necessary.
- 6) Use a common answer book for all sections.

SECTION "B" (40 Marks)

2. Long Answer Questions structured clinical questions (15 x1=15)
- a)
- 3.Short Answer Questions (Any 5 out of 6),(including 1 on AETCOM) (5 x 5=25)
- a) b) c) d) e) f)

MUHS Final Theory Examination

Ophthalmology

MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES, NASHIK FORMAT / SKELETON OF QUESTION PAPER

Instructions:

SECTION "A" MCQ

- 5) Put in the appropriate box below the question number once only.
- 6) Use blue ball point pen only.
- 7) Each question carries **One mark**.
- 8) Students will not be allotted mark if he/she overwrites strikes or put white ink on the cross once marked.

SECTION "A" MCQ (20 Marks)

1. Multiple Choice Questions (Total 20 MCQ of One mark each) (1x20=20)
- a) b) c) d) e) f) g) h) i) j)
k) l) m) n) o) p) q) r) s) t)

SECTION "B" & "C"

- Instructions:**
- 1) Use **blue/black** ball point pen only.
 - 2) **Do not** write anything on the **blank portion of the question paper**. If written anything, such type of act will be considered as an attempt to resort to unfair means.
 - 3) **All** questions are **compulsory**.
 - 4) The number to the **right** indicates **full** marks.
 - 5) Draw diagrams **wherever** necessary.
 - 6) Use a common answer book for all sections.

SECTION "B" (40 Marks)

2. Long Answer Questions (Any 2 out of 3) structured clinical questions (15 x 2=30)
- a) b) c)
3. Short Answer Questions (All 3),(including 1 on AETCOM) (5 x 3=15)
- a) b) c)

SECTION C (40 Marks)

- 4 Long answer questions (15x1=15)
- a)
- 5 Short answer questions(any 4 out of 5) (Clinical Reasoning) (5x4=20)
- a) b) c) d) e)