

Eye and Vision Module

MBBS Year – 4

Table of Contents

2ND YEAR MBBS	3
3RD YEAR MBBS	3
4TH YEAR MBBS	6
LIST OF THEMES.....	6
GENERAL LEARNING OUTCOMES.....	6
<i>Learning objectives Theme 1: Foundation of Ophthalmology</i>	7
<i>Learning Objectives Theme 2: Lid abnormalities & Bulging Eyes</i>	8
<i>Learning objectives Theme 3: Red Eye</i>	9
<i>Learning Objectives Theme 4: Visual loss</i>	11
<i>Learning Objectives Theme 5: Childhood Blindness & Crossed Eyes</i>	13
CLINICALS SCHEDULE.....	14
<i>Theme 1: Foundation of Ophthalmology</i>	14
<i>Theme 2: Lid Abnormalities & Bulging Eyes</i>	15
<i>Theme 3: Red Eye</i>	16
<i>Theme 4: Visual Loss</i>	17
<i>Theme 5: Childhood Blindness & Crossed Eyes</i>	18
TOTAL DURATION OF EYE AND VISION MODULE – 4TH YEAR	19

Ophthalmology Lectures in Modular System

2nd year MBBS

Module	Theme	S. No.	Topic	Learning Objectives
Neurosciences – 2	Diplopia	1	Blindness	Approach a patient with unilateral and bilateral blindness

3rd year MBBS

Module	Theme	S. No.	Topic	Learning Objectives
MSK II	Aching Bones	1.	Anatomy of the orbit and the eyeball	1.
Foundation – II	Molecules and Bacteria	1.	Introduction to the subject; Career in Ophthalmology	2. Define Ophthalmology & its branches 3. Highlight the scope of the field of Ophthalmology as future career
		2.	Refractive errors	4. Describe refractive errors & its effect on vision 5. Describe the concept of myopia and its correction 6. Describe the concept of hyperopia and its effect on vision 7. Describe the concept of astigmatism and cylindrical lens 8. Describe the concept of presbyopia, it's possible causes and correction 9. Describe aphakia and possible methods of its correction

		3.	Watery eyes	<p>10. Explain the structural details, development and functions of lacrimal system</p> <p>11. Correlate the clinical presentation of watery eye with anatomical structures</p> <p>12. Correlate the clinical features with a disease entity</p> <p>13. Describe the causes, clinical features and treatment of congenital nasolacrimal duct obstruction</p> <p>14. Assess the time of probing</p> <p>15. Describe the causes, clinical presentation and treatment modalities</p> <p>16. Differentiate between acute and chronic Dacryocystitis</p>
	Cell injury, ageing and death	4.	Cataracts	<p>17. Define cataract</p> <p>18. Describe the types of cataracts</p> <p>19. Describe the pathogenesis and complications of cataracts</p> <p>20. Describe the management of cataracts</p>
Infection & Inflammation	-	5	Acute and chronic Dacryocystitis	<p>21. Discuss the etiology, clinical features, investigation and management of congenital nasolacrimal duct obstruction.</p> <p>22. Assess the time of probing in children.</p> <p>23. Differentiate between acute, acute on chronic and chronic Dacryocystitis.</p>

				24. Discuss the etiology, clinical features, investigation and management of Dacryocystitis.
	-	6	Episcleritis	25. Discuss the etiology, clinical features, investigation and management of episcleritis.
	-	7	Infective conjunctivitis	26. Discuss the etiology, clinical features, investigation and management of infective conjunctivitis.

4th year MBBS

List of themes

S. No	Themes	hours
1.	Foundation of Ophthalmology	08
2.	Lid abnormalities & Bulging Eyes	10
3.	Red Eye	17
4.	Visual Loss	18
5.	Childhood blindness & Crossed eyes	09

General learning outcomes

By the end of this module, the 4th year MBBS student should be able to:

1. Describe the visual standards.
2. Define and classify blindness.
3. Describe the anatomy and physiology of visual pathway and different visual field defects.
4. Describe the basics and usage of optical coherence tomography (OCT), visual fields and ultrasonography in common eye disorders.
5. Differentiate different types of lid bumps and propose a management plan for it.
6. Discuss ptosis, ectropion and entropion and describe the treatment options.
7. Examine bulgy eyes and investigate different causes of it.
8. Describe the differential diagnosis of red eye.
9. Explain the pathophysiology, and management of different conjunctival inflammations.
10. Explain the pathophysiology, and management of different corneal inflammations.
11. Discuss the pathophysiology, and management of uveal inflammations.
12. Describe the aqueous humor dynamics and its role in glaucoma.
13. Enumerate different causes of gradual visual loss and propose their management plan.
14. Enumerate different causes of sudden visual loss (painful/painless) and propose their management plan.
15. Describe squint, its presentation and principles of management.
16. Enumerate different causes of double vision and propose their management plan.
17. Enumerate different causes of childhood blindness and propose their management plan.
18. Discuss the clinical importance of white pupil in children.
19. Define amblyopia, describe its causes and management.
20. Differentiate between different terms used in ocular trauma.
21. Propose the management plan of ocular injuries.

Learning objectives Theme 1: Foundation of Ophthalmology		
Topic	Learning objectives	Hours
Standards Of Vision and Blindness	1. Discuss visual standards and blindness according to WHO classification.	01
Pupil Reflexes and Drugs Used In Common Eye Conditions	2. Describe the normal and abnormal pupil reflexes. 3. Discuss drugs used in common eye diseases.	01
Visual Pathway and Visual Field Defects	4. Describe the visual pathway. 5. Describe the common visual field defects.	01
Optical Coherence Tomography (OCT) and Visual fields (VF)	6. Discuss the uses of OCT and VF in ophthalmology.	01
Fundus Fluorescein Angiography (FFA) and Ultrasonography	7. Discuss the uses of FFA and Ultrasonography in ophthalmology.	01
Optics & Eye	8. Discuss visual functions (visual acuity, color vision, contrast sensitivity, light brightness), Refraction, Pseudophakia, Aphakia, and Anisometropia	01
Refractive Errors	9. Discuss pathophysiology and clinical presentation of myopia, hypermetropia, astigmatism and presbyopia	01
Correction of Refractive Errors	10. Describe management of myopia, hypermetropia, astigmatism and presbyopia	01

Learning Objectives Theme 2: Lid abnormalities & Bulging Eyes		
Topic	Learning objectives	Hours
Differential Diagnosis Of Lid Bumps	11. Discuss overview of different causes of lid bumps.	01
Chalazion, Stye	12. Describe pathophysiology and management of chalazion and stye.	01
Tumors of Eyelids	13. Discuss different eyelid tumors and its pathogenesis.	01
Management of Lid Bumps	14. Describe management plan of lid bumps.	02
Ptosis	15. Discuss causes of ptosis, assessment and their management.	01
Trichiasis, Entropion and Ectropion	16. Discuss Trichiasis, Entropion and Ectropion, assessment and their management.	01
Proptosis – Basics	17. Discuss the etiology, clinical features, investigation and management of proptosis in children and adults	01
Preseptal and Orbital Cellulitis	18. Discuss the etiology, clinical features, investigation and management of proptosis in children and adults. 19. Enumerate Differential diagnosis / causes of proptosis in children and adults.	01
Thyroid Eye disease (TED)	20. Discuss the etiology, clinical features, investigation and management of TED.	01
Myasthenia Gravis & Migraine	21. Discuss the etiology, clinical features, investigation and management of Myasthenia Gravis. 22. Discuss the etiology, clinical features, investigation and management of Migraine.	01

Learning objectives Theme 3: Red Eye		
Topic	Learning objectives	Hours
red eye	23. Enumerate causes of red eye. 24. Describe pathophysiology and management of different conjunctival (Bacterial/Viral/Fungal/Allergic) inflammations.	02
Corneal Inflammations/Infections	25. Discuss the etiology, clinical features, investigation and management of non-infectious corneal inflammations. 26. Discuss investigations for corneal ulcers.	01
Bacterial Keratitis	27. Discuss the etiology, clinical features, investigation and management of different bacterial corneal ulcers.	01
Fungal, Viral & Acanthamoeba Keratitis	28. Discuss the etiology, clinical features, investigation and management of different fungal, viral & acanthamoeba corneal ulcers.	02
Dacryocystitis	29. Discuss the etiology, clinical features, investigation and management of congenital nasolacrimal duct obstruction. 30. Assess the time of probing in children. 31. Differentiate between acute, acute on chronic and chronic Dacryocystitis. 32. Discuss the etiology, clinical features, investigation and management of Dacryocystitis.	01
Dry Eyes	33. Discuss the etiology, clinical features, investigation and management of Dry Eyes with special emphasis on Vit. A deficiency and Sjogren's syndrome.	01
Blepharitis	34. Discuss the etiology, clinical features, investigation and management of blepharitis.	01
Pterygium, Pseudo-Pterygium, Episcleritis & Scleritis	35. Describe differences between Pterygium, Pseudo-ptyerygium, Episcleritis & Scleritis and their management.	01
Basic Concepts In Ocular Trauma	36. Discuss definitions, classification & clinical evaluation of ocular injuries and principles of management. 37. Discuss corneal and conjunctival foreign bodies and their treatment.	01
Open Globe Injury (OGI) / IOFB / Sympathetic Ophthalmia (SO)	38. Classify OGI. 39. Discuss the etiology, clinical features, investigation and management of OGI and IOFB.	01

	40. Discuss the etiology, clinical features, investigation and management of SO.	
Closed Globe Injury (CGI) Orbital Floor Injury	41. Discuss the etiology, clinical features, investigation and management of CGI. 42. Classify CGI.	01
Radiation, Thermal, Chemical Injuries	43. Discuss the etiology, clinical features, investigation and management of radiation injury. 44. Discuss the etiology, clinical features, investigation and management of thermal injury 45. Discuss the etiology, clinical features, investigation and management of chemical injury.	01
Visual Rehabilitation	46. Discuss various options of visual rehabilitation after ocular trauma. 47. Discuss rehabilitation services for blind people in our setup.	01
Uveitis – Basics	48. Discuss Definitions, classifications, history & workup of uveitis.	01
Anterior & Posterior Uveitis	49. Discuss the etiology, clinical features, investigation and management of Anterior uveitis. 50. Discuss the etiology, clinical features, investigation and management of Posterior Uveitis.	01

Learning Objectives Theme 4: Visual loss		
Topic	Learning objectives	Hours
Visual Loss & Intraocular Pressure (IOP)	51. Classify causes of visual loss in following order: 52. Visual Loss associated with Anterior segment. 53. Visual Loss associated with Posterior segment. 54. Discuss Aqueous humor dynamics and its role in IOP. 55. Enumerate causes of gradual & sudden visual loss. 56. Define and Classify Glaucoma.	01
Open angle glaucoma	57. Discuss the differences between POAG, NTG and OHT. 58. Discuss the etiology, clinical features, investigation and management of POAG. 59. Discuss the etiology, clinical features, investigation and management of NTG. 60. Discuss the etiology, clinical features, investigation and management of OHT.	01
Primary Angle Closure Glaucoma (PACG)	61. Discuss briefly the stages of PACG. 62. Discuss the etiology, clinical features, investigation and management of Acute angle closure.	01
Neovascular Glaucoma & Lens Induced Glaucoma	63. Discuss the etiology, clinical features, investigation and management of Neovascular glaucoma. 64. Discuss the etiology, clinical features, investigation and management of lens induced glaucoma.	01
Treatment Options In Glaucoma	65. Enumerate different treatment options in glaucoma. 66. Discuss the indications of each treatment option.	01
Cataract	67. Define cataract. 68. Describe the types of Age related cataract. 69. Describe the pathogenesis and complications of cataract. 70. Describe the management of cataract.	01
Cataract Surgery Complications	71. Discuss the etiology, clinical features, investigation and management of Endophthalmitis. 72. Discuss the etiology, clinical features, investigation and management of Panophthalmitis.	01
Corneal Ectasia, Dystrophy & Degeneration	73. Discuss the etiology, clinical features, investigation and management of keratoconus. 74. Give overview of corneal dystrophies and degenerations.	01

Diabetic Eye Disease	75. Discuss the effects of diabetes on eye. 76. Discuss the etiology, clinical features, investigation and management of Diabetic Eye Disease (Diabetic Retinopathy and maculopathy).	01
Hypertensive Retinopathy	77. Discuss the effects of hypertension on eye. 78. Discuss the etiology, clinical features, investigation and management of Hypertensive Retinopathy.	01
Central Retinal Vein Occlusion (CRVO) And	79. Discuss the etiology, clinical features, investigation and management of CRVO.	01
Central Retinal Artery Occlusion (CRAO)	80. Discuss the etiology, clinical features, investigation and management of CRAO.	01
Retinal Detachment (RD)	81. Discuss the etiology, clinical features, investigation and management of RD.	01
Choroidal Melanoma	82. Discuss the etiology, clinical features, investigation and management of choroidal melanoma. 83. Describe the importance of this condition on mortality.	01
Night Blindness – Retinitis Pigmentosa, Vit. A Deficiency	84. Discuss the etiology, clinical features, investigation and management of Retinitis pigmentosa. 85. Discuss the etiology, clinical features, investigation and management of Vit. A deficiency.	01
Optic neuritis	86. Classify optic neuritis. 87. Discuss the etiology, clinical features, investigation and management of optic neuritis.	01
Hereditary, Nutritional & Toxic Optic Neuropathies	88. Discuss the etiology, clinical features, investigation and management of these optic neuropathies.	01
Papilledema	89. Describe the difference between papilledema and disc swelling. 90. Discuss the etiology, clinical features, investigation and management of papilledema.	01

Learning Objectives Theme 5: Childhood Blindness & Crossed Eyes		
Topic	Learning objectives	Hours
White pupil (leukocoria) and Retinoblastoma (RB)	91. Describe the importance of white pupil in children. 92. Differentiate different causes of white pupil in children. 93. Discuss investigations in white pupil. 94. Discuss the etiology, clinical features, investigation and management of RB.	01
Congenital Cataract	95. Define congenital cataract. 96. Describe the types of congenital cataracts. 97. Describe the pathogenesis and complications of congenital cataracts. 98. Describe the management of congenital cataracts.	01
Congenital Glaucoma	99. Discuss the etiology, clinical features, investigation and management of Congenital Glaucoma.	01
Amblyopia	100. Define Amblyopia. 101. Discuss the etiology, clinical features, investigation and management of amblyopia.	01
Squint – Basics	102. Discuss definitions, clinical evaluation of squint and principles of management	01
Concomitant Squint Esotropia	103. Define concomitant squint. 104. Discuss the etiology, clinical features, investigation and management of esotropia.	01
Exotropia	105. Discuss the etiology, clinical features, investigation and management of exotropia.	01
Diplopia & Incomitant Squint	106. Discuss differential diagnosis/causes of diplopia. 107. Define incomitant squint. 108. Discuss the etiology, clinical features, investigation and management of 3 rd nerve palsy. 109. Discuss the etiology, clinical features, investigation and management of 4 th nerve palsy. 110. Discuss the etiology, clinical features, investigation and management of 6 th nerve palsy.	01

Add table of previous eye topics.

Clinicals Schedule

Theme 1: Foundation of Ophthalmology			
Topic	Learning objectives	Assessment method	Hours
1. History Taking 2. Visual Acuity	<ul style="list-style-type: none"> Take detailed history in ocular conditions Check visual acuity. 	OSCE	03 + 02
3. Pupil Examination	<ul style="list-style-type: none"> Perform pupillary examination. 	OSCE	03
4. Visual Fields (Confrontation)	<ul style="list-style-type: none"> Perform visual fields examination by confrontation methods. 	OSCE	03
5. Slit-Lamp Examination	<ul style="list-style-type: none"> Identify parts of slit-lamp 	OSCE	01
6. Anterior Segment Examination	<ul style="list-style-type: none"> Examine anterior segment on slit lamp 	OSCE	01
7. Direct Ophthalmoscopy	<ul style="list-style-type: none"> Perform direct ophthalmoscopy 	OSCE	02
8. Retinoscopy	<ul style="list-style-type: none"> Identify trial lenses used in refraction. 	OSCE	03
9. Indirect Ophthalmoscopy	<ul style="list-style-type: none"> Perform indirect ophthalmoscopy 	OSCE	02
Investigations 10. OCT 11. Visual Fields 12. Biometry 13. B-Scan 14. FFA 15. Corneal Topography	Describe/interpret the results of: <ul style="list-style-type: none"> OCT Visual fields Biometry B-scan FFA Corneal topography 	OSCE	03 + 02

Theme 2: Lid Abnormalities & Bulging Eyes			
Topic	Learning objectives	Assessment method	Hours
16. Eversion Of Upper Lids	<ul style="list-style-type: none"> Observe Eversion of upper lids 	OSCE	01
17. Ptosis Examination	<ul style="list-style-type: none"> Perform ptosis examination. 	OSCE	03
18. Ptosis And Its Surgeries	<ul style="list-style-type: none"> Observe ptosis surgery 	OSCE	03
19. Lids Abnormalities	<ul style="list-style-type: none"> Examine common lid abnormalities (Ectropion, Entropion, Chalazion, Stye) 	OSCE	03
20. Lids Surgery Related Instruments	<ul style="list-style-type: none"> Identify instruments used in lids surgery 	OSCE	03
21. Lid Reconstruction Procedures	<ul style="list-style-type: none"> Observe lid reconstruction procedures 	OSCE	05
22. Proptosis	<ul style="list-style-type: none"> Observe proptosis 	OSCE	03

Theme 3: Red Eye			
Topic	Learning objectives	Assessment method	Hours
23. Use Of Topical Anesthesia And Staining	<ul style="list-style-type: none"> • Perform topical anesthesia and staining. 	OSCE	01
24. Removal Of Superficial Foreign Bodies	<ul style="list-style-type: none"> • Observe corneal foreign body removal. 	OSCE	01
25. Corneal Scrapping	<ul style="list-style-type: none"> • Observe corneal scrapping. 	OSCE	02
26. Keratoplasty Surgery	<ul style="list-style-type: none"> • Observe keratoplasty. 	OSCE	03
27. Lacrimal Regurgitation Test	<ul style="list-style-type: none"> • Perform lacrimal regurgitation test. 	OSCE	01
28. Dacryocystorhinostomy (DCR) Surgery & Its Instruments	<ul style="list-style-type: none"> • Observe DCR surgery and identify instruments used 	OSCE	03
29. Ocular Trauma	<ul style="list-style-type: none"> • Observe first aid to Ocular trauma • Perform eye wash in chemical injury. 	OSCE	03
30. Globe Repair Surgery	<ul style="list-style-type: none"> • Observe OGI surgery. 	OSCE	03

Theme 4: Visual Loss			
Topic	Learning objectives	Assessment method	Hours
31. Normal Disc 32. Disc Abnormalities 33. Swollen Disc(S)	<ul style="list-style-type: none"> Examine normal disc Examine glaucomatous disc. Examine swollen disc 	OSCE	03
34. Detection Of Retinal Lesions 35. Retinal Vascular Diseases	<ul style="list-style-type: none"> Detect common retinal conditions Differentiate different retinal vascular conditions. 	OSCE	03
36. Retinal Detachment	<ul style="list-style-type: none"> Identify RD in pictures Observe Retinal detachment surgery 	OSCE	03
37. Use Of Lasers In Eye 38. Intravitreal Injections	Discuss <ul style="list-style-type: none"> Use of lasers in eye Intravitreal injections 	OSCE	02
39. Tonometry	Observe goldman tonometry	OSCE	01
40. Glaucoma Filtration Surgery	Observe Glaucoma filtration surgery	OSCE	03

Theme 5: Childhood Blindness & Crossed Eyes			
Topic	Learning objectives	Assessment method	Hours
41. Congenital Glaucoma	<ul style="list-style-type: none"> Observe congenital glaucoma examination (EUA) and surgery 	OSCE	03
42. Cataract (Adult and Congenital)	<ul style="list-style-type: none"> Detect cataract on ocular examination 	OSCE	03
43. Cataract surgery	<ul style="list-style-type: none"> Observe types of Adult and Congenital cataract surgery 	OSCE	03 + 03
44. Extraocular Movements	<ul style="list-style-type: none"> Perform extraocular movements and squint examination 	OSCE	03
45. Squint Examination	<ul style="list-style-type: none"> Perform cover / uncover / alternate cover tests Identify the pattern of squint (Esotropia vs. Exotropia) 	OSCE	03
46. Squint Surgery	<ul style="list-style-type: none"> Observe squint surgery 	OSCE	03

Total Duration of Eye and Vision Module – 4th year

Theme	In class teaching (Hours)	Clinicals (Hours)	Total (Hours)
Theme 1: Foundation of Ophthalmology	08	25	33
Theme 2: Lid Abnormalities & Bulging Eyes	10	21	31
Theme 3: Red Eye	17	14	31
Theme 4: Visual loss	18	15	33
Theme 5: Childhood Blindness & Crossed Eyes	09	21	30
Total	62	96	158