

MBBS Curriculum

Dated 28-09-2018

i) **GOAL:** The broad goal of the teaching of students in ophthalmology will be to provide such knowledge and skills to the students that shall enable him to practice as a clinical and as a primary eye care physician and also to function effectively as a community health leader to assist in the implementation of National Programme for the prevention of blindness and rehabilitation of the visually impaired.

ii) **OBJECTIVES**

a. **KNOWLEDGE:** at the end of the course, the student should have knowledge of-

1. Common problems affecting the eye:
2. Principles of management of major ophthalmic emergencies
3. Main systemic diseases affecting the eye
4. Effects of local and systemic diseases on patient's vision
and the necessary action required to minimise the sequelae of such diseases;
5. Adverse drug reactions with special reference to ophthalmic manifestations;
6. Magnitude of blindness in India and its main causes;
7. National programme of control of blindness and its implementation at various levels
8. Eye care education for prevention of eye problems
9. Role of primary health centre in organization of eye camps
10. Organization of primary health care and the functioning of the ophthalmic assistant.
11. Integration of the national programme for control of blindness with the other national health programmes.
12. Eye bank organization

b. **SKILLS:** At the end of the course, the student should be able to-

1. Elicit a history pertinent to general health and ocular status;

2. Assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiötz tonometry, staining for Corneal pathology, confrontation perimetry, Subjective refraction including correction of presbyopia and aphakia, direct ophthalmoscopy and conjunctival smear examination and Cover test.
3. Diagnose and treat common problems affecting the eye
4. Interpret ophthalmic signs in relation to common systemic disorders;
5. Assist/observe therapeutic procedures such as subconjunctival injection, Corneal/Conjunctival foreign body removal, Nasolacrimal duct syringing and tarsorrhaphy;
6. Provide first aid in major ophthalmic emergencies;
7. Assist to organise community surveys for visual check up;
8. Assist to organise primary eye care service through primary health centres;
9. Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.
10. Establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team.

INTEGRATION: The undergraduate training in Ophthalmology will provide an integrated approach towards other disciplines especially neurology, Otorhinolaryngology, General Surgery and Medicine.

Basic Plan for undergraduate teaching:

Teaching of undergraduate students is done through Theory lectures, Seminars, demonstrations and Clinical teaching

In addition, problem based exercise are given to the students. Common problems like acute red eye, progressive & sudden loss of vision are discussed with active participation of students.

LIST OF THEORY LECTURES: 70 hours

SL.No	Topics
1	Basic Anatomy
2	Physiology of Eye
3	Symptomatology of Ocular Diseases
4	Examination of Eye
5	Diseases of Eyelids
6	Diseases of Conjunctiva
7	Diseases of Cornea
8	Refractive Errors
9	Disorders of Uveal tissue
10	Diseases of Lens
11	Glaucoma
12	Vitreous
13	Diseases of Retina
14	Optic Nerve
15	Orbit & intraocular Tumours
16	Diseases of Lacrimal System
17	Injuries of the Eye
18	Squint
19	Ophthalmic Emergencies
20	Neuro-Ophthalmology
21	Ocular Pharmacology & Adverse drug reaction
22	Eye in Systemic Diseases
23	Community Ophthalmology- Magnitude of Blindness, National Programme for control of Blindness, Organization of Eye camps, Rehabilitation of Blind
24	Eye Bank organization / Eye Donation
25	Diagnostics equipment and procedures in Ophthalmology (2 hours/class) divided into 4 batches
26	Dark room Procedures (2 hours/class) <i>divided into 4 batches</i>
27	Operations of Eye (2 hours/class) <i>divided into 4 batches</i>
28	Operative instruments (2 hours/class) <i>divided into 4 batches</i>

LIST OF SEMINARS (from following topics):

Sr. No.	Topics
1	Embryology and anatomy of various coats of the eye
2	Physiology of Eye and vision
3	Injuries of Eye & Ocular emergencies
4	Systemic diseases affecting the eye
5	Recent advances in Ophthalmology
6	Lasers in Ophthalmology
7	Common Ocular diseases
8	Community Ophthalmology
9	Hygiene of vision

Clinical Teaching: 8 week, 3hours/week

8 weeks of clinical teaching will be imparted to the students divided in 02 slots viz during semester V and VII respectively.

Students will elicit detailed history and perform clinical examination of the patient. They will be required to write case history which will be evaluated.

Problem based learning will be introduced in the clinical teaching learning methodology.

Students will be evaluated at the end of their clinical posting.

Teaching program:

Teaching programs are regularly updated to include newer developments. As of now the program is:

Theory lectures

Topics	Specific learning objectives		Number of teaching hours	Number of lectures	Assessment methods
	Must know	Desirable to know			
Anatomy & physiology of eye	Anatomy: Including development, coats of the eye, extra ocular muscles, blood & nerve supply & Visual Pathway. Physiology: of vision, tears, and aqueous humor.		2	2	Short answer questions, MCQs Viva
Pharmacology in relation to eye	Ophthalmic preparations & routes of administration of antibiotics, antiviral & anti fungal, cycloplegics, anti glaucoma drugs, steroids, ocular toxicity of some systemic		2	2	Short answer questions, MCQs Viva
Pathology & microbiology in relation to eye			1	1	Short answer questions, MCQs Viva

	<p>medications.</p> <p>Histopathology of retinoblastoma, malignant melanoma, squamous cell carcinoma, basal cell carcinoma.</p>				
Ocular symptomatology			1	1	Short answer questions, MCQs Viva
Conjunctiva	<p>Conjunctivitis :Bacterial including ophthalmia neonatorum & membranous conjunctivitis, chlamydial – trachoma, inclusion conjunctivitis, viral, allergic, simple, phlyctenular, vernal Degenerations</p>	<p>Chronic Conjunctivitis, mucocutaneous diseases affecting conjunctiva</p>	4	4	Essays & short answer questions, MCQs Viva

	<p>: Pinguecula, pterygium, concretions</p> <p>Dry Eye : Xerosis, bitots spots</p> <p>Limbal nodule : D/D Sub conjunctival hemorrhage, causes, chemosis</p>				
Cornea	<p>Corneal ulcer – Bacterial, Fungal, Viral Vit A deficiency, Exposure Keratitis, Neuroparalytic Keratitis Interstitial Keratitis Corneal Edema Eye Banking including eye donation & keratoplasty (basic)</p>	<p>Degenerations Dystrophies, Ectatic conditions</p> <p>Kerato-refractive Surgery (Basics)</p>	6	6	<p>Essays, short answer questions, multiple choice questions Viva</p>
			1	1	<p>Short answer questions Viva</p>
Sclera	<p>Scleritis, Episcleritis including DD, investigation & treatment</p>	<p>Blue Sclera</p>			

Uvea	<p>Uveitis : Including classification – Anatomic, Pathologic, Aetiologic Anterior uveitis : Clinical features, complications, D/D Investigations, & Treatment. Purulent Uveitis - Endophthalmitis, Panophthalmitis.</p>	<p>Posterior uveitis, Ocular Albinism, Coloboma</p>	6	6	<p>Essays, short answer questions, multiple choice questions Viva</p>
Lens	<p>Cataract Classification Senile cataract aetiology, Clinical features, evaluation, management including Phaco emulsification, Aphakia. Complications of cataract surgery</p>		6	6	<p>Essays, short answer questions, multiple choice questions Viva</p>

	Congenital Cataract-types, Amblyopia, assessment & early referral, management Complicated Cataract, Traumatic cataract, Metabolic cataract, Toxic cataract, (Short description)				
Vitreous	Haemorrhage – Causes & treatment		1	1	Short answer questions Viva
Glaucoma	Classification Primary open Angle Glaucoma Primary Angle Closure Glaucoma Congenital Glaucoma	Secondary Glaucoma	6	6	Essays, short answer questions, multiple choice questions Viva
Retina	Diabetic Retinopathy Hypertensive retinopathy including toxemia of pregnancy Haematological diseases Vascular	Retinitis pigmentosa, Retinal infections, Toxoplasma, CMV, AIDS	6	6	Essays, short answer questions, multiple choice questions Viva

	disease – CRAO, CRVO, Eale’s disease Retinopathy of Prematurity Retinal Detachment				
Optic Nerve & neuro-ophthalmology	Visual pathways, Papilloedema Papillitis, Retrobulbar Neuritis Optic Atrophy, Toxic amblyopia		5	5	Essays, short answer questions, multiple choice questions Viva
Intra ocular tumours	Retinoblastoma Malignant Melanoma		1	1	Essays, short answer questions, multiple choice questions Viva
Strabismus	Classification paralytic vs nonparalytic, visual acuity,binocular vision,amblyopi a , cranial nerve palsies		4	4	short answer questions, multiple choice questions Viva
Orbit	Common Causes of Proptosis Orbital Cellulitis Including Cavernous Sinus		4	4	Essays, short answer questions, multiple choice questions Viva

	thrombosis				
Lacrimal system	Causes of Epiphora Dacryocystitis – Congenital, Acute, Chronic Causes of Dry Eye, diagnosis & Management		2	2	Essays, short answer questions, multiple choice questions Viva
Lids	Inflammations –Blepharitis, Hordeolum, Chalazion Anomalies of position – Entropion, Ectropion, Trichiasis, Ptosis, Lagophthalmos, Symblepharon, Ankyloblepharon		3	3	Essays, short answer questions, multiple choice questions Viva
Refractive errors	Myopia, hypermetropia, astigmatism, presbyopia, anisometropia, accommodation & convergence		3	3	Essays, short answer questions, multiple choice questions Viva
Trauma	Open globe	Retained	5	5	Essays,

	injuries, closed globe injuries Including sympathetic ophthalmitis, Endophthalmitis Chemical injuries, focus on first aid	IOFB, Medico legal aspects			short answer questions, multiple choice questions Viva
Surgery	General principles of intra-ocular surgeries, enucleation, evisceration & other surgeries covered in respective chapters		2	2	short answer questions, multiple choice questions Viva
Community ophthalmology	Definition, types, causes of blindness NPCB, Vision 2020, Eye camps, Comprehensive eye care in rural setup		2	2	short answer questions, multiple choice questions Viva
Recent advances in ophthalmology			1	1	short answer questions, multiple choice questions, viva
Ocular involvement in	Thyroid ophthalmopathy		1	1	short answer questions,

systemic diseases	y, ocular myasthenia & various syndromes involving eye.				multiple choice questions, viva
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Topics for Tutorials

- Ophthalmic History
- Ophthalmic examination
- Acute red eye
- Cataract
- Refractive errors
- Dark room procedures
- Glaucoma
- Drugs in ophthalmology
- Corneal ulcers
- Closed Globe injury
- Open Globe injury
- Medical emergencies
- OT instruments
- Ptosis
- Examination of – a case of strabismus
- Theory Exam
- Ward Leaving

Clinical Postings (8 wks)

➤ **1st Posting (4 weeks) semester V/VI**

Topics

1. History taking
2. Common symptomatology of ocular diseases
3. Methods of visual assessment
4. Methods of ocular examination
5. Methods of examination of ocular adnexa
6. Instruments

➤ **2st Posting (4 week) semester VII**

Topics

1. Case presentation & Discussion

- Cataract
- Aphakia
- Pseudophakia
- Uveitis
- Glaucoma
- Dacryocystitis
- Entropion/Ectropion
- Pterygium
- Corneal opacity
- Corneal ulcer
- Leucocoria
- Strabismus
- Proptosis
- Ptosis

2. Observation of OPD Procedures

- Syringing & probing
- Chalazion incision & curettage
- Electro cautery
- BCL application
- IOP measurement
- Tarsorrhaphy
- Suture removal

- Sub-conjunctival injection

3. Observation in eye O.T.

- Cataract surgery
- Glaucoma Surgery
- Pterygium surgery
- Lid surgery

4. Instruments

5. Dark room Procedures

Examination Skills

Able to perform independently	Able to perform under guidance	Observe	Assist
<p>1. Visual Acuity test and Use of pinhole (including light perception, projection)</p> <p>2. Visual field by confrontation</p> <p>3. Hirschberg test to detect obvious squint</p> <p>4. Examination of ocular movements</p> <p>5. Assessment of corneal sensation</p> <p>6. Assessment of Anterior chamber depth</p> <p>7. Pupillary size and reaction</p> <p>8. Schiottz's Tonometry</p> <p>9. Regurgitation for NLD Block</p> <p>10. Instillation of eye drops/ointment</p> <p>11. Irrigation of conjunctiva</p> <p>12. Applying of patching</p> <p>13. Eversion of upper eye lid</p> <p>14. Digital tonometry</p> <p>15. Phoria, tropia / BSV, preliminary knowledge of cranial nerves II, III, IV, VI</p> <p>16. Assessment of Opacity in the media</p>	<p>1. Colour Vision test</p> <p>2. Fluorescein staining to identify corneal abrasion</p> <p>3. Distant direct ophthalmoscopy on dilated pupils to diagnose lens opacities</p> <p>4. Method of Direct ophthalmoscopy</p>	<p>1. Syringing</p> <p>2. Epilation of cilia</p> <p>3. Removal of corneal foreign body</p> <p>4. Entropion surgery</p> <p>5. Cataract surgery</p> <p>6. Glaucoma surgery</p> <p>7. Keratoplasty</p> <p>8. Chalazion/Stye</p>	<p>1. Use of lid retractors to examine the eye of a child</p> <p>2. Tarsorrhaphy</p>

Examination: wef MBBS 2015 batch

Will be held at the end of VII semester

❖ Summative Assessment (3rd Professional Exam)

- Theory: 10 marks (one paper of 3 hours duration comprising of 200 MCQ/ Clinical vignette)
- Practical / Clinical: 15 marks (Case presentation+ OSCE) held in 1 day

❖ Internal assessment (Formative): 40 marks (Theory-10; Practical-30)

❖ **Total 65 marks**

*(*Marks of Ophthalmology will add up to General Surgery Exam at the end of semester IX)*

Examiners:

02 External & 02 Internal. In case if only 01 internal is available then external should be 03.

RECOMMENDED BOOKS

1. Parson's Diseases of the Eye, 20th Ed. Revised by Dr. Ramanjit Sihota and Radhika Tandon, Published by Butterworth – Heinemann, Elsevier.
2. Ophthalmology by Samar Basak
3. Text book of Ophthalmology by Prof. H.V. Neema, 4th / 5th Editions, Jaypee brothers.
4. Essentials of Ophthalmology, Dr. Pradeep Sharma