

Proposed Curriculum for MBBS

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, Schiøtz 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, Otorhino-laryngology, General Surgery and Medicine.

Basic Plan for undergraduate teaching:

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

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: 100 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	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	Extraocular muscles and ocular motility
3	Physiology of vision
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

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

Examination

Theory : One paper 40 marks (should contain one question on pre-clinical and para-clinical aspects, of 10 marks)

Oral (Viva)/OSCE 10 marks

Clinical 30 marks

Internal assessment 20 marks (Theory-10; Practical-10)

Total 100 marks

Examiners:

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

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 medications.		2	2	Short answer questions, MCQs Viva
Pathology & microbiology in relation to eye			1	1	Short answer questions, MCQs Viva

	Histopathology of retinoblastoma, malignant melanoma, squamous cell carcinoma, basal cell carcinoma.				
Ocular symptomatology			1	1	Short answer questions, MCQs Viva
Conjunctiva	Conjunctivitis :Bacterial including ophthalmia neonatorum & membranous conjunctivitis, chlamydial – trachoma, inclusion conjunctivitis, viral, allergic, simple, phlyctenular, vernal Degenerations : Pinguecula, pterygium, concretions Dry Eye : Xerosis, bitots spots Limbal nodule : D/D Sub conjunctival hemorrhage, causes, chemosis	Chronic Conjunctivitis, mucocutaneous diseases affecting conjunctiva	4	4	Essays & short answer questions, MCQs Viva

Cornea	Corneal ulcer – Bacterial, Fungal, Viral Vit A deficiency, Exposure Keratitis, Neuroparalytic Keratitis Interstitial Keratitis Corneal Edema Eye Banking including eye donation & keratoplasty (basic)	Degenerations Dystrophies, Ectatic conditions Kerato- refractive Surgery (Basics)	6	6	Essays, short answer questions, multiple choice questions Viva
Sclera			1	1	
		Blue Sclera			Short answer questions Viva
	Scleritis, Episcleritis including DD, investigation &				

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

	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 disease – CRAO, CRVO, Eale's disease Retinopathy of Prematurity Retinal Detachment	Retinitis pigmentosa, Retinal infections, Toxoplasma, CMV, AIDS	6	6	Essays, short answer questions, multiple choice questions Viva
Optic Nerve & neuro- ophthalmology	Visual pathways, Papilloedema Papillitis, Retrobulbar Neuritis		5	5	Essays, short answer questions, multiple choice questions

	Optic Atrophy, Toxic amblyopia				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, amblyopia, cranial nerve palsies		4	4	short answer questions, multiple choice questions Viva
Orbit	Common Causes of Proptosis Orbital Cellulitis Including Cavernous Sinus thrombosis		4	4	Essays, short answer questions, multiple choice questions Viva
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	Inflamations – 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 injuries, closed globe injuries Including sympathetic ophthalmitis, Endophthalmitis Chemical injuries, focus on first aid	Retained IOFB, Medico legal aspects	5	5	Essays, short answer questions, multiple choice questions Viva
Surgery	General principles of intra-ocular surgeries, enucleation, evisceration & other surgeries		2	2	short answer questions, multiple choice questions Viva

	covered in respective chapters				
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 systemic diseases	Thyroid ophthalmopathy, ocular myasthenia & various syndromes involving eye.		1	1	short answer questions, multiple choice questions, viva

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

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 VIII

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
- Intravitreal injection

3. Observation in eye O.T.

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

4. Instruments

5. Dark room Procedures

Examination Skills

perform independently	Able to perform under guidance	Observe	Assist
<p>Acuity test and Use of pinhole (including light perception, n)</p> <p>field by confrontation</p> <p>berg test to detect obvious squint</p> <p>ation of ocular movements</p> <p>ment of corneal sensation</p> <p>ment of Anterior chamber depth</p> <p>ary size and reaction</p> <p>z's Tonometry</p> <p>gitation for NLD Block</p> <p>ation of eye drops/ointment</p> <p>ation of conjunctiva</p> <p>ying of patching</p> <p>sion of upper eye lid</p> <p>al tonometry</p> <p>a, tropia / BSV, preliminary knowledge of cranial nerves II, III,</p> <p>ssment of Opacity in the media</p>	<ol style="list-style-type: none"> 1. Colour Vision test 2. Fluorescein staining to identify corneal abrasion 3. Distant direct ophthalmoscopy on dilated pupils to diagnose lens opacities 4. Method of Direct ophthalmoscopy 	<ol style="list-style-type: none"> 1. Syringing 2. Epilation of cilia 3. Removal of corneal foreign body 4. Entropion surgery 5. Cataract surgery 6. Glaucoma surgery 7. Keratoplasty 8. Chalazion/Stye 	<ol style="list-style-type: none"> 1. Use of retractor examine of a child 2. Tarso

Theory Paper-40 Marks

1. MCQs (16 questions of ½ marks each)	8 marks
2. Problem based questions (from lens, uvea, glaucoma, cornea & ocular injury)	8 marks
3. Essay type questions (from lens, uvea, glaucoma, cornea & ocular injury)	8 marks
4. Two short answer type questions (of 4 marks each) (from lid, conjunctiva, lacrimal apparatus & sclera)	8 marks
5. Four short notes type questions (of 2 marks each)	8 marks

Practical & Oral Examination -40 marks

Practical Examination	30 marks
1. Clinical case (one)	10
2. Surgical instruments	10
3. Dark room procedures & lenses	10
Oral	10 marks
Viva-voce/ OSCE	10

Distribution of Marks

Theory: one paper	40 marks
1. MCQs (16 questions of ½ marks each)	8 marks
2. Problem based questions	8 marks

3. Essay type questions	8 marks
4. Two short answer type questions (of 4 marks each)	8 marks
5. Four short notes type questions (of 2 marks each)	8 marks
Practical Examination	30 marks
Oral	10 marks
Internal Assessment	20 marks
(Theory-10: Practical-10)	
Total	100 marks

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

