

DEPARTMENT OF OPHTHALMOLOGY

i)GOAL:

The broad goal of the teaching undergraduate students Ophthalmology is the undergraduate training in Ophthalmology will provide an integrated approach towards other disciplines especially Neurosciences, Otorhino-laryngology, General surgery and Medicine. Compartmentalized teaching of subjects offers little scope for integration.

ii)OBJECTIVES:

The general objectives of the department are to teach medical students sufficient ophthalmology to enable recognition of common eye complaints and their etiology as well as recognition of less common but life or sight threatening emergencies presenting as eye findings.

a)KNOWLEDGE:

At the end of the course, the student should be able to :-

1. Know and perform the seven elements of the basic eye examination
 - a. Visual acuity
 - b. External appearance
 - c. Ocular motility
 - d. Pupils
 - e. Visual fields
 - f. Slit lamp/pen-light examination
 - g. Ophthalmoscopy
2. Recognize the causes of acute and chronic visual loss, know the systemic associations (especially giant cell or temporal arteritis), and initiate an appropriate treatment plan.
3. Know the various causes of a red eye and their treatments, and the consequences of topical anesthetic, antibiotic, antiviral, and corticosteroid therapies.
4. Understand the concept of glaucoma and its ophthalmoscopic appearance, and recognize the difference between open-angle and narrow-angle glaucoma.
5. Detect the presence of a relative afferent papillary defect (RAPD), and understand its significance.
6. Understand the basic visual field defects and their related terminology.
7. Detect the presence of strabismus and understand its significance. The student should be able to define amblyopia.
8. Know the different signs of ocular trauma and be able to distinguish between mild and serious ocular injuries
9. Understand the significance of papilloedema and its varied manifestations.

b)SKILLS

At the end of the course, the student should be able to :-

1.The student should understand the effects of environment on health and be familiar with the epidemiology of at least the more common diseases in the field of ophthalmology.

2.Effectively communicate with patients or relatives so as to educate them sufficiently and give them the full benefit of informed consent to treatment and ensure compliance

3.Acquire scientific and rational approach to the diagnosis of ophthalmic cases presented.

To demonstrate the knowledge of the pharmacological (including toxic) aspects of drugs used in ophthalmic practice and drugs commonly used in general diseases affecting the eyes.

4.Essential diagnostic skills:

a.Slit lamp Examination Diffuse examination• Focal examination

b. Fundus evaluation - Direct/Indirect ophthalmoscopy

c. Tonometry - Applanation/Indentation/Non-contact

d.Tear/Lacrimal function tests -Schirmer /Break up time• Syringing

e.Keratometry – performance & interpretation

f.Colour Vision evaluation- Ishihara pseudoisochromatic plates

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.

OPHTHALMOLOGY CURRICULUM

TOPICS:-

- **Visual Acuity Assessment**

OP1.1 Describe the physiology of vision

OP1.2 Define, classify and describe the types and methods of correcting refractive errors

OP1.3 Demonstrate the steps in performing the visual acuity assessment for distance vision, near vision, colour vision, the pin hole test and the menace and blink reflexes

OP1.4 Enumerate the indications and describe the principles of refractive surgery

OP1.5 Define, enumerate the types and the mechanism by which strabismus leads to amblyopia

- **Lids and Adnexa, Orbit**

OP2.1 Enumerate the causes, describe and discuss the aetiology, clinical presentations and diagnostic features of common conditions of the lid and adnexa including Hordeolum externum/ internum, blepharitis, preseptal cellulitis, dacryocystitis, hemangioma, dermoid, ptosis, entropion, lid lag, lagophthalmos

OP2.3 Demonstrate under supervision clinical procedures performed in the lid including: bells phenomenon, assessment of entropion/ ectropion, perform the regurgitation test of lacrimal sac. massage technique in cong. dacryocystitis, and trichiatric cilia removal by epilation

OP2.4 Describe the aetiology, clinical presentation. Discuss the complications and management of orbital cellulitis

OP2.5 Describe the clinical features on ocular examination and management of a patient with cavernous sinus thrombosis

OP2.6 Enumerate the causes and describe the differentiating features, and clinical features and management of proptosis

OP2.7 Classify the various types of orbital tumours. Differentiate the symptoms and signs of the presentation of various types of ocular tumours

OP2.8 List the investigations helpful in diagnosis of orbital tumors. Enumerate the indications for appropriate referral

- **Conjunctiva**

OP3.3 Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications. and management of various causes of conjunctivitis

OP3.4 Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of trachoma

OP3.5 Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of vernal catarrh

OP3.6 Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of pterygium

OP3.7 Describe the aetiology, pathophysiology, ocular features, differential diagnosis, complications and management of symblepharon

- **Corneas**

OP4.1 Enumerate, describe and discuss the types and causes of corneal edema

OP4.2 Enumerate and discuss the differential diagnosis of infective keratitis

OP4.3 Enumerate the causes of corneal edema

OP4.4 Enumerate the causes and discuss the management of dry eye

OP4.5 Enumerate the causes of corneal blindness

OP4.6 Enumerate the indications and the types of keratoplasty

OP4.7 Enumerate the indications and describe the methods of tarsorrhaphy

OP4.8 Demonstrate technique of removal of foreign body in the cornea in a simulated environment

OP4.9 Describe and discuss the importance and protocols involved in eye donation and eye banking

- **Sclera**

OP5.1 Define, enumerate and describe the aetiology, associated systemic conditions, clinical features complications indications for referral and management of

OP5.2 Define, enumerate and describe the aetiology, associated systemic conditions, clinical features, complications, indications for referral and management of scleritis

- **Iris and anterior chamber**

OP6.1 Describe clinical signs of intraocular inflammation and enumerate the features that distinguish granulomatous from non-granulomatous inflammation. Identify acute iridocyclitis from chronic condition

OP6.2 Identify and distinguish acute iridocyclitis from chronic iridocyclitis

OP6.3 Enumerate systemic conditions that can present as iridocyclitis and describe their ocular manifestations

OP6.4 Describe and distinguish hyphema and hypopyon

OP6.5 Describe and discuss the angle of the anterior chamber and its clinical correlates

OP6.7 Enumerate and discuss the aetiology, the clinical distinguishing features of various glaucomas associated with shallow and deep anterior chamber. Choose appropriate investigations and treatment for patients with above conditions.

OP6.8 Enumerate and choose the appropriate investigation for patients with conditions affecting the Uvea

OP6.9 Choose the correct local and systemic therapy for conditions of the anterior chamber and enumerate their indications, adverse events and interactions

- **Lens**

OP7.1 surgical anatomy and the metabolism of the lens

OP7.2 Describe and discuss the aetio-pathogenesis, stages of maturation and complications of cataract

OP7.3 Demonstrate the correct technique of ocular examination in a patient with a cataract

OP7.4 Enumerate the types of cataract surgery and describe the steps, intra-operative and post-operative complications of extracapsular cataract extraction surgery.

OP7.6 Administer informed consent and counsel patients for cataract surgery in a simulated environment

- **Retina**

OP8.1 Discuss the aetiology, pathology, clinical features and management of vascular occlusions of the retina

OP8.2 Enumerate the indications for laser therapy in the treatment of retinal diseases (including retinal detachment, retinal degenerations, diabetic retinopathy & hypertensive retinopathy

OP8.3 Demonstrate the correct technique of a fundus examination and describe and distinguish the fundoscopic features in a normal condition and in conditions causing an abnormal retinal exam

OP8.4 Enumerate and discuss treatment modalities in management of diseases of the retina

OP8.5 Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway

- **Optic nerve, visual pathway and neuro-ophthalmology, miscellaneous**

OP8.5 Describe and discuss the correlative anatomy, aetiology, clinical manifestations, diagnostic tests, imaging and management of diseases of the optic nerve and visual pathway

AN31.5 Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus

OP9.2 Classify, enumerate the types, methods of diagnosis and indications for referral in a patient with heterotropia/ strabismus

OP9.3 Describe the role of refractive error correction in a patient with headache and enumerate the indications for referral

OP9.4 Enumerate, describe and discuss the causes of avoidable blindness and the National Programs for Control of Blindness (including vision 2020)

OP9.5 Describe the evaluation and enumerate the steps involved in the stabilisation, initial management and indication for referral in a patient with ocular injury

INTEGRATION

- **Human Anatomy**

AN30.5 Explain effect of pituitary tumours on visual pathway

AN31.3 Describe anatomical basis of Horner's syndrome

AN31.5 Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus

AN41.1 Describe & demonstrate parts and layers of eyeball

AN41.2 Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion

AN41.3 Describe the position, nerve supply and actions of intraocular muscles

- **Physiology**

PY10.17 Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, Refractive errors, colour blindness, Physiology of pupil and light reflex K

PY10.18 Describe and discuss the physiological basis of lesion in visual

PY10.19 Describe and discuss auditory & visual evoke potentials

- **Pathology**

PA36.1 Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma

- **Pharmacology**

PH1.58 Describe drugs used in Ocular disorders

- **General Medicine**

IM24.15 Describe and discuss the aetiopathogenesis, clinical presentation, identification, functional changes, acute care, stabilization, management and rehabilitation of vision and visual loss in the elderly

SUMMARY OF TIME ALLOTTED, TEACHING AND LEARNING METHODS AND STUDENT
ASSESSMENT

TIME ALLOTTED

Year	Lectures (Hours)	Small Group Learning (Tutorials, Seminar, Integrated Learning) (Hours)	Self Directed Learning(Hours)	Total(Hours)
Third Professional Year Part I	30	60	10	100

Clinical posting	Weeks
II MBBS	4
III MBBS Part I	4

To be noted:

- The number of hours mentioned above are rough guidelines that can be modified to suit the specific requirements of a medical college.
- It is recommended that didactic teaching be restricted to less than one third of the total time allotted for that discipline.
- Greater emphasis is to be laid on hands-on training, symposia, seminars, small group discussions, problem-oriented and problem-based discussions and self- directed learning.
- Students must be encouraged to take active part in and shared responsibility for their learning.

UNIVERSITY EXAMINATIONS

TABLE SHOWING SCHEME FOR CALCULATION OF UNIVERSITY EXAMINATION MARKS

Name of the subject	Evolution parameter	Maximum marks	Passing marks
Ophthalmology	Written - Theory		
	Paper - I	100	50
	Practical/Oral	100	50

- Mandatory 50% marks in theory and practical (practical = practical/ clinical + viva) [theory=theory paper(s) only]
- Internal assessment marks are **not to be added** to marks of the University examinations and should be **shown separately** in the grade card.
- As per proposed GMER 2019, the University examinations will be held in the month of October for third phase Part I

In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass in the said subject.